



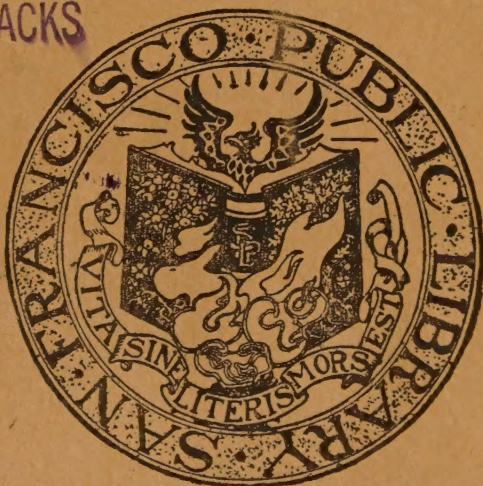
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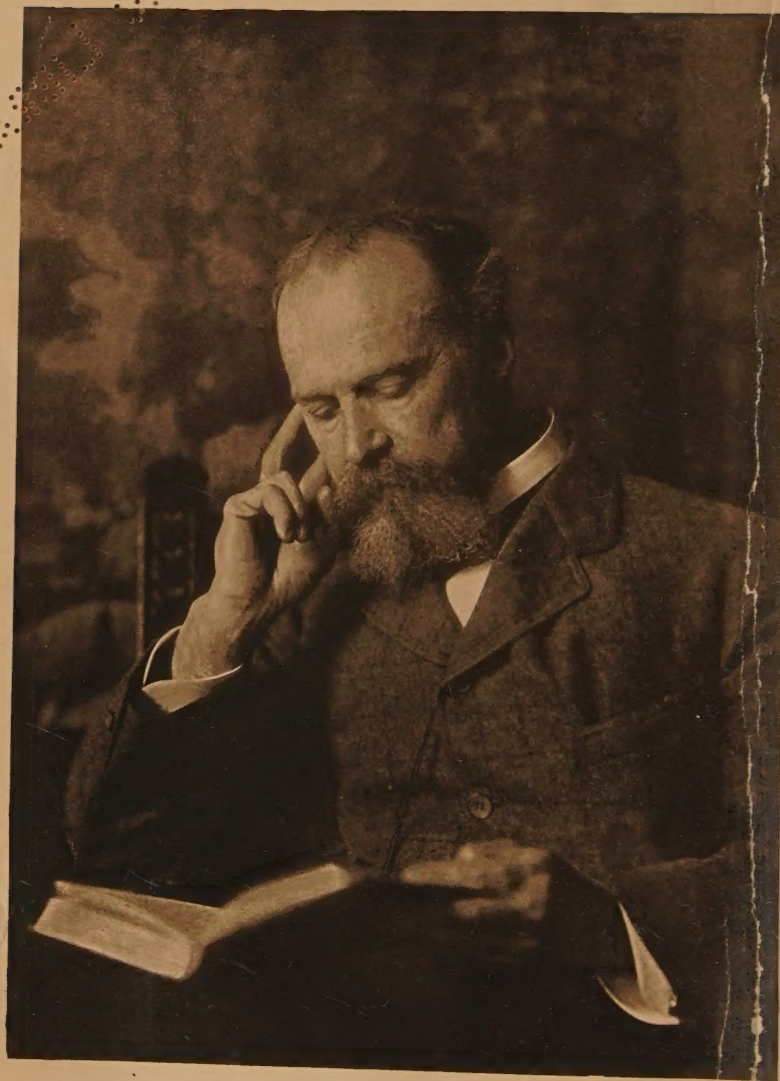
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ESSAYS PHILOSOPHICAL AND PSYCHOLOGICAL

IN HONOR OF
WILLIAM JAMES
PROFESSOR IN HARVARD UNIVERSITY

BY HIS COLLEAGUES AT COLUMBIA
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PREFATORY NOTE

THIS volume is intended to mark in some degree its authors' sense of Professor James's memorable services in philosophy and psychology, the vitality he has added to those studies, and the encouragement that has flowed from him to colleagues without number. Early in 1907, at the invitation of Columbia University, he delivered a course of lectures there, and met the members of the philosophical and psychological Departments on several occasions for social discussion. They have an added motive for the present work in the recollections of this visit.

COLUMBIA UNIVERSITY,
March, 1908.

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NOTE. *With the group of contributors, members of the Department of Philosophy and of Psychology early in 1907, is associated another who joined the former Department subsequently. Three of them have since withdrawn from Columbia University, two to other institutions.*

ESSAYS PHILOSOPHICAL AND PSYCHOLOGICAL

∴

THE NEW REALISM

BY GEORGE STUART FULLERTON

I BEG that it may be understood that no question-begging is intended in my title. A philosophical doctrine is not necessarily worthy of acceptance because it is new. It is foolish to argue that, because a philosophy happens to be the current one, it is deserving of respect; just as it is foolish to argue that, because certain beliefs are discovered to have an affinity with the beliefs current in some by-gone age, therefore they must be antiquated and worthy of rejection. There is no philosophy accepted in our time which has not its roots in the past, and we may always obtain a cheap triumph over its adherents by taunting them with the date at which their ancestors thought that they saw the light. But this is a cheap triumph, indeed, and one which we may all enjoy in our turn. Only he whose reading and reflection have been limited will look upon it as worth enjoying.

There are indications that a number of thinkers at the present time are turning their attention to

some form of realism — that they have weighed idealism in the balance and have found it wanting. The tendency is, I believe, a growing one, and a number of the leaders of philosophic thought have been drawn into the current. This is, in itself, no reason for assuming that realism is true. In philosophy it is not the same thing to be in the right and to be in the fashion, as I have said above.

Nevertheless, the fact seems to make a discussion of the comparative merits of idealism and realism the more opportune and the more likely to be of general interest. And it sets one to thinking anew of the great rôle which realism has played in the past. Not realism in the mediæval sense of the word, but realism as the modern man understands it; the realism which accepts an external physical world distinct from anyone's ideas, the realism which is in sympathy with the thought of the mass of mankind, the realism which has always been tacitly accepted, I think, by science, ever since there was such a thing as science. We are apt to forget that for very many centuries the world was realistic in its thinking, even those whom we sometimes refer to as idealistic philosophers having little in common with those whom we now call idealists — with the men who maintain that there is no existence save psychic existence, and who resolve "things" into the perceptions or ideas of some mind.

To this new fashion in thinking it was Descartes who led the way, without seeing what lay at the

end of his path. He reasoned much as men do now about the function of the bodily senses in bringing us to a knowledge of things; he shut the mind up to ideas for all its immediate knowledge, and made ideas merely representative of things not themselves directly perceived; he thus placed the world at one remove, and, for his successors, lost the world. Not at once, for old habits of thought persisted, in spite of logic. A world was assumed, even when every connection was cut between it and the knowing mind. But it is hard to go on believing in things when there is clearly no reason at all for so doing. Descartes was the logical forerunner of Berkeley; and in the fulness of time the latter appeared, and in his train the whole tribe of those to whom that self-assertive, that persistent, that seemingly not to be ignored fact, the physical world, became sublimated into a mental thing, or a semi-mental thing, or, at any rate, a thing unlike what mankind had supposed it to be before the advent of the new doctrine.

Yet the defection from the old doctrine was not, even when the new one was at the height of its popularity, by any means universal. Those who have held to the pre-Cartesian philosophy, and they have been many, have never bowed down at the new shrine. Doubtless many of them have kept true to their first love out of sheer inertia, as does the traditional Hollander, despising the fickle Italian for his love of change. But to others we may

attribute higher motives. And from other quarters protests have been raised, notably from the Scottish philosophers, men of robust good sense, but not always metaphysicians, and sometimes incapable of seeing what the acute idealist may say in his own justification. Moreover, in quiet corners, especially in England and in America, men not directly influenced by Scholasticism have quietly gone on teaching a realistic doctrine in spite of what seemed the dominant note in the philosophy of the time. Furthermore, the man who was not a philosopher, whether he happened to belong among the learned or the unlearned, always believed, as hinted above, in an external world other than the world of ideas, and in his blundering way condemned the idealist. With him has stood the man of science, who, whatever he may have said when he attempted to philosophize, consistently has treated physical phenomena in one way and mental phenomena in another. This is a significant distinction, and one not to be conjured out of existence by a mere distribution of titles, by vaguely marked distinctions drawn between philosophy and science, or by the obscurity induced by the cumbersome and highly technical set of phrases, to my mind of doubtful importance, which the idealists from and including Kant have seen fit to call into being.

The pendulum now shows unmistakable signs of swinging toward realism. It ought to be under-

stood that this is not an aberration — a phenomenon to be regarded with concern. It is swinging in the direction of the spontaneous thought of mankind, of the belief of the ages. Man is naturally a realist, though it is undoubtedly true that the uninstructed man is a rather stupid realist. To make of him a reflective and reasonable realist, some natural ability on his part is prerequisite, as is also some labor on the part of his instructor. But, on the other hand, it requires no little effort to turn men into idealists. The doctrine is by no means so satisfactory or so self-evident as it seems to be to those who have become thoroughly indoctrinated, to whom certain words and phrases have grown to be the most natural expression of their thought and in need of no analysis, who are habituated to an uncomfortable chair, and who no longer find it uncomfortable.

But let them think themselves back to the time of their first introduction to philosophy. Did idealism seem natural and reasonable then? Even the glamour cast by the name — a glamour which has had much to do, I think, with the popularity of the doctrine, can scarcely reconcile a beginner to what seems so little in harmony with good sense and common experience. In so far as any system of reflective thought can be called natural, it is realism that is natural, not idealism.

It may be said that, in touching upon certain of the facts brought forward above, I am employ-

ing something like an *argumentum ad populum*. I hope it will be understood that, in so far as I do this, I address only those who make use of a similar argument in favor of idealism. This was shamelessly done by that lovable creature Berkeley, and it has been done repeatedly since. Idealism has been confused with what is ideal, and the appeal has been to the emotions and aspirations of men — an appeal made, of course, in good faith, but a mistaken appeal, for there are all sorts of idealism and all sorts of realism, and either form of doctrine may be inspiring or the reverse. After all, for the philosopher, *qua* philosopher, the question is: What is the truest account that reflective thought can give of the world in which we find ourselves? Whether this world is one that pleases us or does not please us is a thing to discuss after we have found out what it really is.

In what follows, I shall not rest my case upon an appeal to the authority of great names, whether of the dead or of the living. Nor shall I try to show that realism is a doctrine that ought to attract the pious man or the canny fellow who wants to be on the safe side. I shall not talk of the fashions, nor be contemptuous of those whose sleeves have not the latest cut. I wish to discuss the subject on its own merits: Why should a man, influenced by none other than intellectual considerations, become a realist, and what sort of a realist should he become?

And, in pursuance of this aim, I shall, first, bring forward what seem to me the deficiencies of idealism as a philosophical doctrine; then, I shall try to show how it happens that men of acute mind have been, and are, misled into embracing it; finally, I shall endeavor to indicate what ought to be recognized by the man who, in our day, would be a realist. This means, to my mind, that he must not be forgetful of his debt to the idealists, men who have seen a certain truth, even if they have somewhat misconceived it. The limits of this paper compel me to brevity, but such a résumé as is here possible may not be without its usefulness.

I

The Deficiencies of Idealism

It can scarcely be regarded as without significance that men generally find themselves compelled to distinguish constantly between ideas and "things," and to mark the distinction by using different expressions when they are referring to the one or to the other. Every man would regard it as absurd to talk of a dream image confined within the walls of a real material bottle, of an imagined knife lying upon a real table, of his neighbor's percept—assuming him to know what is meant by the word percept—transfixed and held up to view on the point of a fork.

Nor would he find these forms of expression

repellent merely because they are unusual. The objection to them is that they stand for ways of treating certain things in his experience which he, in actual practice, repudiates. However dim his distinction between the mental and the material, however incapable he may be of accurately defining things, he has all his life distinguished between the physical and the mental, and the expressions which he spontaneously uses fairly represent this universal and apparently unavoidable distinction.

And it cannot be regarded as without significance that this distinction is just as unmistakably recognized by science. There are certain sciences which describe things in space and in time without making the least reference to the mental. It might be claimed by the superficial observer that they take no note of the distinction. But let anyone pass for a moment from the physical to the psychical, and unwarrantably introduce into the material world what properly belongs to a different sphere, and the scientist would be up in arms at once. His real metre is not what seems a metre to this man or to that; his real half-hour is not the interminable time which seems to have elapsed while the weary listener waited for a tiresome paper to be read to its close. He wants no subjective ghosts let loose in his world of objective realities, and when he suspects the presence of such, he is restive in the extreme.

It may be the direct aim of a science to busy

itself only with changes in the external world, and yet it may be compelled incidentally to recognize mental phenomena. Thus, in astronomy, we take into consideration the personal equation, consciously distinguishing between an occurrence in the outer world and the perception of that occurrence. On the other hand one science, psychology, deliberately aims to describe what is carefully distinguished from the physical; and the kindred disciplines of ethics and sociology base themselves upon similar ground. Imagine the feelings of the psychologist who would be asked to treat the mental phenomena, with which he occupies himself, precisely as he and others are ready to treat physical phenomena! Neither in the laboratory nor out of it would he have the faintest idea how to undertake such a task.

Thus, he who declares all phenomena to be mental repudiates the actual knowledge of the world which both the unlearned and the learned seem to have. He repudiates a distinction which is imbedded in the very structure of human experience. He would introduce confusion into the sciences, if the sciences paid any attention to him, which they do not. Science quietly goes its own way and gives an account of the world of matter and mind as it is revealed to us, or as it is guessed at from indications which are revealed. The man of science who also chooses to be an idealistic philosopher is compelled, as we may see if we will

but watch him at his work, to keep his science upon one dish and his philosophy upon another. The latter does not grow out of the former, and it does not conduce to a better understanding of the former. It is irreconcilable with it, and must be kept apart. This appears to have been realized with some clearness by those idealists who have maintained that the realities of science are, after all, but unreal appearances, fitted to command the respect of those only who have not yet attained to the beatific vision reserved for the eye of the philosopher.

I do not ask anyone to accept a non-mental, material world merely on the ground that such a world is accepted unhesitatingly both in common thought and in science. Nevertheless, I must confess that I think that he is a courageous man, an unduly courageous man, who hastily throws it over, merely because he is perplexed to know how to give a good account of it. And when one reflects that it has been denied, after all, by a mere handful of men, men brought up in and inoculated with the same tradition, men some of whom have been betrayed into extravagances with which even their confrères could feel little sympathy, and, moreover, men struggling with the difficulties of reflective thought, working in a region in which all results ought to be held tentatively and with some diffidence — when one reflects upon all this, the denial seems the more rash. Of course, the

few may, on general principles, be admitted to be possibly in the right; but the assertion that they are in the right ought to be made, if at all, with a good deal of caution. I hardly think it can be called an appeal to authority to ask that one bear this warning in mind, when one is brought face to face with what seems to be a rather startling philosophical doctrine.

But, to come directly to the question itself, what can be said against idealism? what are the shortcomings of the doctrine?

In answering this question, I think we should begin by pointing out that we do not find ourselves in a chaos of experiences. We seem to be in an orderly world, in which the succession of phenomena is such that it does not appear to be absurd to speak of "the laws of nature." We recognize phenomena as distributed in space and in time; there is such a thing as history.

It is not nonsense to ask *where* something happened, and *when* it happened. We turn to a system, an order, and it is evidently not an arbitrarily constructed system; we try to *find* the place and the time of some occurrence in question. *Any* place and *any* time will not do; sometimes we discover that we have been mistaken, and then we make a correction.

Now, it is not every succession of experiences which we have that we call, or have a right to call, a series of phenomena in that order by means of

which we date occurrences, or fix the positions, distances, and magnitudes of things. We can and do distinguish perfectly well between subjective changes and objective changes.

It may be said that Berkeley, the idealist, recognized in his fashion this same distinction, and expressly referred to the laws of nature, describing them as the orderly ways in which a Divine Spirit arouses ideas in us. But is this account of the matter adequate? Does it properly mark the distinction between the subjective and the objective? It is true that we *may* have a direct experience of objective changes. We may, with the relation of our sense-organs to the object unchanged, observe changes taking place in things — we may watch the swelling of a soap-bubble or note the motion of the second-hand of a watch — but the matter is not always so simple. We are constantly changing the position of our body with regard to things; we open and shut our eyes, thus having experience of things and losing it altogether. And, from a long experience, we have all, whether idealists or realists or not philosophers at all, learned to distinguish between mere changes in sensations and changes in things, between the subjective and the objective. Often the distinction is one sufficiently easy to draw; sometimes we may be puzzled to know what the objective order really is. But in no case is it a fair statement of the matter to suggest that the objective order is simply spread

out before our gaze, and taken up by us without the labor of discrimination and selection. We are compelled to find out what it is as a whole; comparatively little is given us directly.

It is to a knowledge of this order of phenomena that physical science endeavors to attain. It is position in this order that we try to determine when we ask regarding the place and time of anything. All our measurements come back to this. When we ask how big an object is, we do not mean to determine how big it looks to this man or that, under these circumstances or under those. We refer to its size relatively to other things in the physical order. And when we ask when something happened, we always refer to this same order. How shall we measure the time which has elapsed since Columbus discovered America? by physical changes; by revolutions of the sun. How shall I measure the time which has elapsed since I sat down at this desk to write? by looking at the clock before me. In certain cases we may be reduced to the poor expedient of falling back upon subjective time — we may be forced to guess how long a time has elapsed by estimating how long the time has seemed. But even here our ultimate reference is to the objective standard. We have had experience of the fact that such seemings may indicate with approximate correctness the hours and half hours marked by the clock. It is because of this that our makeshift is of any service.

Our ultimate standard of reference is, then, to the physical world-order; an order of experience, but one not to be confounded with what is subjective. Our where and our when, our how great and our how small, our before and our after, our together and our apart, all come back to this. This is the very vertebral column of the organism of experience. It serves to order all phenomena. Reflection makes it evident that we make use of it in the ordering of mental phenomena as well as in the ordering of physical

We do not hesitate to speak of mental phenomena as coming into existence at this definite time or at that. We never think of anyone as having a thought at no time and in no definite relation to the rest of the system of things. When did Cæsar's body cross the Rubicon? We measure the time which elapsed between that and any other physical event by a reference to the series of physical changes separating the two. When did Cæsar *decide* to cross? Surely, we say, during his lifetime — on the day of, or on some day preceding, the crossing. The psychologist goes so far as to say: When a certain physical change, of which we at present know little, took place in the man's brain.

I shall not here dwell upon the peculiar character of the relation between the decision and the brain-event in question. What the relation is, can, I believe, be made reasonably clear, and I have

elsewhere essayed the task.¹ That which I am here concerned to point out is, that we never attempt to date any mental occurrence save in the one way. Without the physical order we are wholly at sea. When did Othello find out that he had grounds for jealousy? When will Brown make up his mind that it is not wise to speculate in stocks? When did I have that rosy dream that I had inherited a fortune? Is there no sense in asking when? Men do date mental occurrences. It is done universally. And it is always done in the same way — some point is selected in the succession of physical changes which constitute the objective order, and the mental occurrence in question is referred to that.

Moreover, we all distinguish between the minds of Smith, of Jones, and of Robinson. Should the three men, by any chance, happen to have precisely similar sensations, we could never conclude that we were concerned with but the one group of sensations. We have to do with three groups; the sensations of one man may undergo great change; he may turn and walk away from the object at which he has been looking; the other men may stand still and continue to look at the object. Whether the sensations of two men are conceived to be similar or not, our recognition of a plurality of experiences is the same. It is enough for us, that, in the one case, sensations are referred

¹ "Introduction to Philosophy," New York, 1906, chapter ix.

to the one body, and, in the other case, are referred to another body.

Suppose that I am asked to believe in a fourth group of sensations, and, when I ask to what body I am to refer them, I am told that they are to be referred to no body. They are not to be conceived as the sensations of this man or of that man. They are not the sensations of anyone who has been, is, or shall be anywhere. Can I *believe* in such a group? Never! I can undoubtedly *imagine* groups of sensations, or, at any rate, of experiences which, if referred to a body, I should call sensations. But I cannot believe in them as real, so long as they are cut off wholly from the real world of things. They are abstractions, mere imaginings. To talk of them as existing is nonsense, unless I mean to indicate by the word only that certain things have a place in my thought, and are actually imagined.

Now, suppose that I attempt to be thoroughly idealistic; suppose that I ignore the objective order, as such, and try to order my world solely with reference to ideas properly so called.

Where is the room, or the experience of the room, in which I seem to be sitting? Is it between the idea of a hall and the idea of a garden? Is there another side to this desk? I am imagining another side, it is true; but is there anything that may be called a space-relation between a percept and a memory-image, as such? Does

the other side exist now? or is it a mere potentiality? Is it in harmony with what we know of desks to say that they are made up of percepts and memory-images?

I wake from sleep, and, looking at my watch, observe that its hands are not in the position in which they were when I last observed it. May I say that I have slept eight hours? Has *time* elapsed? So far as my immediate experience goes, nothing has elapsed. If I have slept soundly, there has been nothing at all between the two experiences in question. How shall I date my waking? Not by referring it to a position among my sensations or ideas. Did anything happen while I slept? Surely. But when did it happen? Its happening cannot be given a place among my past sensations or ideas. It does not seem more sensible to give it a date in what is present to my imagination after I awake. Such dates we reserve for my *thoughts* about what happened.

Again. I believe that other men live now, and that men lived and died before I was born. I shall not here try to prove the existence of other minds, but shall accept it, as the world, unlettered and lettered, unreflective and philosophic, idealistic and realistic, has accepted and does accept it. I shall ask only, how are we forced to speak of these minds if we really ignore the external world, the physical system of things in space and time, the objective order of experience?

We have seen above that it is nonsense to talk of a particular mind which is not particularized by reference to some particular body. May I say that the mind of the Mayor of Philadelphia is to be distinguished from the mind of the Mayor of New York by the fact that the one is referred to a given group of my ideas, and the other to another group? What is the relation of these two minds to each other when I am not thinking about either of these officials? Do they have real bodies when I am experiencing what Berkeley calls "ideas of sense," and only imaginary bodies when I am experiencing "ideas of imagination"? If we consistently refuse to make any distinction between things and our percepts or images of things, it is not easy to see how we are to escape out of this tangle of absurdities.

Furthermore, we all accept the fact that the mind of Francis Bacon came into existence at an earlier date than that of Berkeley. How far apart shall we place the two dates? Surely, I have no satisfactory scheme of arrangement, if I refer Bacon's mind to my idea of Bacon's body and Berkeley's mind to my idea of Berkeley's body. What are the dates of my ideas? They have themselves no dates, in any proper sense of the word, if there is no objective order of things distinguishable from ideas. Besides, Bacon and Berkeley lived and died before I had any ideas at all, unless history is to be utterly repudiated.

It may be maintained that the idealist is not forced to be so complete a subjectivist, pinning his faith to a world into which nothing is admitted save the collections of phenomena which constitute finite minds. He may accept a Divine Mind, as did Berkeley, or an Absolute, as have done various other philosophers, and may use it as some sort of a cement to unite the little worlds of finite individual experience which seem in danger of falling into mere chaos unless ordered and related by something distinguishable from themselves.

But readers of Berkeley will remember that he gives no indication how a Divine Mind is to be regarded as ordering the experiences of finite minds. He furnishes us with no world-order save that which slips in involuntarily in his recognition of the laws of nature, in his half-grasped distinction between ideas of sense and ideas of other classes. In other words, he does not help us except in those moments in which he is in danger of passing over to realism and of admitting an objective order, one not to be confused with what is mental. As for the Absolute, or rather the Absolutes, for they have been many, it remains to inquire how such can serve our purpose.

Manifestly, an Absolute that is degraded to the rank of a mere Unknowable can play no part whatever in ordering phenomena. I perceive this desk here; I believe that there is a front-door to this house. What is the relation between the two?

Is one at one point in the Unknowable, and the other at another? I have a percept at the present moment; I believe that Cato had a percept at some time in the past. Is this time which makes me regard my percept and his as not simultaneous measured by a reference to the Unknowable? No man living, unlearned or learned, fixes events in his life by assigning to them dates in the Unknowable, nor does he determine the location of objects or their distances from one another by having recourse to the same useless nonentity.

One may argue that the idealist who accepts an Absolute does not make of it a mere Unknowable. Yet, so far as the part which it plays in ordering anything or accounting for anything goes, the Bradleyan Absolute, at least, seems quite as useless. We are informed that all existence is psychic existence; it is assumed that there is a multitude of finite minds or centres of experience; the "Reality" of these finite minds is called the Absolute. But it should be observed that in this Absolute there is no distinction of space or time, quantity or quality, or, indeed, of anything that means anything. Phenomena are not ordered or distinguished from one another by reference to it. No account of anything is rendered more intelligible by bringing it in. What is the relation between successive presentations in my mind, or between presentations in my mind and those in another?

No answer to such questions can even be attempted upon the basis proposed. The real world, both of common life and of science, is simply abandoned. Have I *now* a percept, and did Cato have one *at some time* in the past? this is mere appearance — in Reality there is no time, and, of course, no way of measuring time. How may I distinguish Cato's percept from mine, or, indeed, his centre of experience from my own? In Reality there is no distinction. It is puzzling to know why the man who wishes to extend or to clarify his knowledge should concern himself with this psychic Unknowable at all.

But may not the idealist accept an Absolute that is really of some significance for knowledge? May he not accept a mind which can, in some intelligible sense, serve as a bond of connection, a basis of orderly arrangement, for phenomena?

What is to prevent one from putting such a mind in place of the external world in which most of us believe? Why not maintain that the external world, as directly revealed to each of us, is a portion of such a mind? that finite minds are to be regarded either as parts of this inclusive mind, or as related to various bits of it in some way that may fix their relations to each other?

In other words, may one treat an Absolute Mind as science and common sense treat the physical world in space and time, relating this occurrence and that in the order which it furnishes,

referring this mind and that to different bodies in it, and thus fixing the relations of phenomena of all sorts in the universe?

To this I think we have to answer: It is an abuse of the word "mind" to apply it to this system of phenomena. The words "physical" and "mental" are not to be used at random. They have a different connotation. If there is one philosophical truth which seems to have met with general acceptance rather than most others, it is that, in some sense of the words, we have objects in the external world *in common*, but are the private proprietors of the mental phenomena which we may experience. Just what this "in common" means, I shall not here inquire; but it does mark a well-recognized distinction between the physical and the mental. We *perceive* trees and houses; we *infer* our neighbor's sensations and ideas.

There is, to be sure, a school of thought which maintains that we know other minds directly, and are not shut up to the well-known argument from analogy. But this doctrine sounds plausible only so long as it confines itself to vague phrases such as: "consciousness is social from the beginning," etc.; it breaks down just as soon as one grows explicit. In common life it is assumed that we infer the thoughts and feelings of other men and of the brutes from indications gathered from their bodily expressions. In psy-

chology it would be regarded as absurd to maintain that we may introspectively scrutinize the consciousness of another as we do scrutinize our own. The great majority of philosophers have accepted this truth frankly; and, as I have indicated above, those who have not done so show, when they condescend to particulars and grow definite, that they are forced to acknowledge the truth as well. I perceive the things that my neighbor sees and touches; his percepts of those things I do not perceive; I merely infer them.

This peculiarity of the mental, the fact that it is the property of a given consciousness and is not directly revealed to another, we have no right to deny to an Absolute Mind, if we really are talking about a mind, and have not introduced confusion and desolation with the introduction of that unhappy word "absolute." I do not directly perceive the sensations and ideas of the brute; I do not directly perceive those of my fellow-men; there is no reason for maintaining that I directly perceive the mental experiences of any other being, however sublime.

But we do have, as has been pointed out, certain direct experiences which we can recognize as those of an objective order of experience, and can distinguish from subjective changes which are taking place in ourselves. I can watch a soap-bubble grow; I can walk toward one which I recognize as remaining of the same size, and can

have a whole series of experiences which are admitted by everybody to be series of changing percepts, and not indicative of change in the object. I can destroy a soap-bubble; I can cause it to disappear by closing my eyes. Neither in science nor in common life do we confuse such things. In the one case, we recognize that we have to do with the physical; in the other, that we are concerned with the mental.

What right has the philosopher to rub out this distinction? He has no right. The idealistic philosopher who maintains that the objective order which we are all forced to accept, and of which science attempts to give us an exact account, is an Absolute Mind, has simply recognized the external world and has given it the wrong name. In giving it the wrong name, he may easily be seduced into assigning to it attributes which can properly be assigned only to minds. He may speak of it as good, as blessed, as perfect, etc. When one perceives clearly what one is doing, it is not difficult to see that all this is illegitimate. It is not sensible to say that the external world is happy or is good, just as it is not sensible to say that a percept is in a drawer, that a dream-image is a foot long, or that one's memories of leaden images have a high specific gravity.

Such considerations as the foregoing lead me to the conviction that I am not wrong in drawing a sharp distinction between the physical and the

mental, and in refusing to obliterate that distinction even out of courtesy to an Absolute. We do live in a World. Even in common life we measure things in space, we date events in time, we talk of other minds than our own and refer them to given bodies. A body that exists nowhere and at no time does not exist; a mind which can be referred to nothing means for us only an imagined mind. Science accepts this, and differs from common thought only in being more complete and exact. In other words, we find ourselves in a system of experiences; and reflection reveals to us that our system would be no system were the physical really left out.

Why, then, do men find themselves tempted to be idealists and to ignore the physical as such? There is certainly some plausible reason, or so many acute minds would not have been impelled to tread a path which leads to conclusions seemingly in so little accord with common experience and with good sense.

II

Why Men become Idealists

I have referred earlier in this paper to the verbal confusion and to the emotional influences which may lead some men to embrace idealism. It is not necessary to dwell upon such things here. Men of keen mind are not, as a rule, a slave to the

associations which attach to words. I have known only one foreigner who became an American democrat because of the etymology of the word. And earnest men who are seeking the truth ought to keep their emotions in check, and not sacrifice their logic upon the altar of their desires.

I am now concerned only with those who are willing to embrace a philosophical doctrine for no other reason than that it seems to be a reasonable one, or at any rate, a more reasonable one than any rival doctrine presented for their consideration. I suppose that what chiefly influences such men to become idealists is that they have a vivid realization of the fact that there is no sense in talking about the external world except as we know something about it, and that we cannot know anything about it unless we have *sensations*.

This is a truth which does not seem to have been sufficiently vivid to the realists of a past age — to the realists who held the ground before idealism became the fashion — though one can find passages enough in their works that bring the truth clearly before the mind of the man who has passed through the schools of the idealists. From a very early time men distinguished between things and the sensations that they arouse in us; and, not infrequently, men even dwelt upon the possible discrepancy between things as they are and things as they seem to present themselves to our senses.

To the Cartesian, the distinction between things

and our knowledge of them was sharpened, as the body, and the processes which result in perception, became more definitely known. It came to be realized that something must take place in the brain, if a man is to have a sensation. It was accepted that all sorts of things may go on in the outer world, and even in the human body, the man remaining, so long as they are not reported at the little central office, in ignorance of them. From this it seems but a short step to the conclusion that we have no immediate knowledge of anything but images, representatives of things; that we are directly conscious of mental phenomena only, and must depend for all our knowledge of the physical upon some inference for which a justification may not unreasonably be demanded. One is moved to assert that our life is passed among images; that they, at least, are certain and indubitable, but that what lies beyond them is something in which we may believe or disbelieve — is legitimate matter for theoretic doubt.

This conclusion is new as well as old; it is, in some quarters, very much in the fashion to-day. Moreover, following the old round, the possibility of doubt first ripens into doubt, and then rots into denial. We are informed that we are shut up for all our knowledge to sensations and to memories of sensations, since we can know only the messages conducted along the nerves to the brain. Then we are told that we have no legitimate reason for

even trying to penetrate the darkness which, like a wall, shuts in our sensations. Sensations and their copies are declared to be the property of science; this is land that can be enclosed and cultivated in some rational way. What lies in the meaningless beyond is generously bestowed upon that misguided collector of ciphers, the metaphysician, the poor rich man, whose wealth is purely imaginary. The doctrine has recently elicited some applause.

I shall not dwell upon the untenability of this doctrine — upon its getting sensations by invoking the aid of the body, and then denying that there is a body; upon its using the word “sensation” to mark a distinction, and then repudiating the foundation upon which the distinction must be based. That this house is divided against itself must be evident to everyone who gives the matter a little careful attention.

Nevertheless, untenable as the doctrine clearly is, it is not equally clear that one may not say a good deal in its behalf. One may be tempted to maintain that, if ever a self-contradictory hypothesis deserved a little respect, this one may make a claim to kind treatment. When inspected in itself it is seen to be a suspicious character; yet what appear to be irreproachable witnesses may be summoned to testify in its favor.

Thus, common sense recognizes that we can only see things when our eyes are open and feel them

when we touch them with our bodies. The function of the senses in mediating a knowledge of things is matter of every-day experience. The psychologist describes for us in detail the process by which we came to a knowledge of a world of things, and he founds all our information about the world ultimately upon impressions made upon the periphery of the body and messages conducted therefrom to the central nervous system. It is a rash man that will condemn the whole procedure of the science of psychology. And yet, if one accepts it, what then?

If we leave such general considerations and come back to the experience mentioned earlier in this paper as one in which an objective order is revealed, are we not in the same case? I stand with open eyes and watch the soap-bubble expand. Both the plain man and the man of science would agree with me in maintaining that something is happening in the physical world. But, after all, is there a single experience in the whole series revealed to me that may not properly be termed sensation? If I stood nearer or farther away, I should not see just what I do see. If my eyes were closed, I should not see anything at all.

Moreover, I may reflect that, as our experiences of things differ according to the relation of our senses to them, so we have every reason to believe that the experiences of different minds differ. The color-blind man does not see what I see.

The experience of the world, if we may call it such, enjoyed by lower creatures in their descending series, probably varies more and more widely from my own. What the world may seem like to possible higher creatures, I may try to guess, but I can be sure of little save that a difference must be expected. Does it not seem true, then, that what the world is perceived to be is a function of the creature experiencing the world? What more than this is needed to make a man some sort of an idealist? For my part, I am tempted to believe that the man who has never felt any leaning toward idealism, notwithstanding the protest of science and of common experience, has never seen very deeply into the constitution of experience. There appear to be so many external worlds, all unlike each other, and each chained to the senses of some perceiving creature. Where, in all this, is *the* world?

III

The New Realism

There is a form of realism sometimes attacked by the idealist, which it is not a difficult task to demolish, but which, in our day, scarcely seems to have a claim upon powder and shot. He who holds to an external world not revealed in our experiences, but existing quite outside of and apart from them, an external world to which no path

leads, and which cannot be described in any intelligible terms, may be permitted to cherish his faith in peace. As he cannot advance what may properly be called an argument, we are under no obligation to meet him with what may properly be called an answer.

To refute such a realism is not to refute realism. The words "sensation" and "thing," "inner" and "outer," must mark some significant distinction, if they are to be worth disputing about. In the first part of this paper I have tried to show that they do mark such a distinction, and that this distinction is one universally recognized, although it is recognized by a few inadvertently and reluctantly.

In answer to the idealistic contention set forth a little further back, namely, that there is no experience of the world where there is no sensation, I advance, not a denial, but a complementary statement. It is this: *There is no sensation, that can be recognized as such, where there is no experience of the world.*

What is a sensation? The word is surely not one to be used at random. No one thinks of employing it as a mere name for anything and everything. When we imagine a tree or a house, we do not admit that we are concerned with sensations. How can we distinguish between sensations and such experiences as these?

But one answer to this question can be given.

We find in experience an objective order of phenomena. No one who has not senses finds it, of course. The phenomena that stand in the objective order are *revealed*, i. e., they may be referred to the senses of someone, and, in so far, they are his perception of the objective order — the man is recognized as experiencing sensations. But, although we constantly refer phenomena to our senses, this is not our only way of treating them. We relate them to each other directly, abstracting from the relation to sense, and in so far we recognize them as having their place in an objective order. As so considered the phenomena in question are not sensations; they are qualities of things. That phenomena may have this double relation is evident from the fact that one set of sciences occupies itself with them in the one relation, and another busies itself with them as standing in the other. We cannot repudiate all these sciences. A color merely imagined or seen in a dream cannot be treated by physical science as in any sense the property of a thing; it cannot be regarded by psychology as a sensation.

He who dwells upon sense-organs, nerves, and messages, gives a meaning to the word sensation; if he subsequently discards this physiological apparatus, or sublimates it into a mere "projection," he ought to discard with it all the meaning he has gained, and ought, in justice, to abandon the use of the word. If, by bad luck, he inconsistently

holds on to it, he becomes an idealist, a subjectivist.

Any realism which claims a right to recognition at the present day ought to recognize and to incorporate within itself at least as much truth as has been seen by the subjectivist, and all that may reasonably be deduced from it. What should such a realism admit? That I shall endeavour to set forth below.

1. First of all, the realist should frankly admit that the only external world about which it can be profitable to talk at all is an external world revealed in *experience*. At the same time, it is of no little importance to discover what one has a right to mean by this world revealed in experience. When I say that I perceive a world, I do not mean merely that I am aware of a given group or succession of phenomena of a particular sort. The plain man, the man of science, the philosopher, all recognize the fact that I may speak of perceiving the same tree, whether I perceive it from a distance or near at hand, or whether I am made aware of it through the sense of vision or the sense of touch. Even the idealistic philosopher has dwelt upon this truth — it was Berkeley who pointed out that we speak with propriety when we say that we hear, see, and touch the same coach, although our experiences in hearing, seeing, and touching are not identical. The tree is not to be confounded with any one of the experiences that I have; it may be

revealed in any one. If our experiences are connected in certain regular ways, as they are, a single experience may represent an indefinitely large group, and may give information regarding it.

It is, then, perfectly proper to distinguish between an object in the outer world and any given experience of that object. To draw this distinction, one is in no wise compelled to go beyond experience, and to lose oneself in the region of the unknown or the unknowable. It is only necessary to realize what the constitution of experience is.

2. When I arrive at a knowledge of other minds, I know that they may not be having the same experiences that I am having, and yet I say, without being blamed for saying it, that they perceive the same things. It is not an eccentricity for me to talk thus. I am marking a truth that is generally recognized. The realist should frankly admit that my experiences are not identical with those of my neighbor, and even that they may be very widely different from them.

But there is nothing in this to lead him to deny that we both perceive the same tree, or to fall back upon some unknowable and unexperienced tree that no one perceives. He should analyze the situation, and try to discover what the use of the word "same" indicates in such a connection. It manifestly does not indicate that we are talking of identical experiences. Everyone knows that they

are not identical. And yet, we are evidently talking about something that is revealed in experience.

What has been said a little above may well be borne in mind here. I have many different experiences and yet say that I perceive the same tree; it is perfectly allowable to distinguish between the one tree and any of the experiences as such. Their differences may be dropped out of sight and emphasis laid upon the function performed by them all, upon the one set of relations in which they all stand. Even so it is possible to abstract from the differences which characterize the experiences of two men, and to speak of the one tree which both perceive.

With open eyes and standing at a given distance from a tree, I perceive it; I also perceive the body of another man, its eyes being directed toward the tree in question; I infer that he has a perception, as I have. I may stand nearer to the object or further away; he may stand nearer to it or at a greater distance. Under such circumstances, I must admit that my experiences will vary, and I must believe that his will vary, too. But, if it is legitimate for me to speak of the one tree notwithstanding the variations in my own experiences, it is legitimate for me to use the same words notwithstanding the variations in his. The variations can be set aside; in fact, they *are* set aside, and it is recognized that something in the objective order of my experiences serves as a stepping-stone to the

experiences of another. Thus we perceive the One World. Science very properly treats it as one, recognizing that the experiences of one man are not cut off from those of another, but belong to the same system with them. What has been dropped out of view is taken up again when we turn to the science of psychology, and ask how the world appears to this individual or to that.

3. Finally, the realist should be quite as ready as anyone else to admit that our knowledge of the world grows and changes; that we make mistakes and afterwards correct them; that many things which we now believe to be true about the world, we may later find out to be untrue, and may have to replace with other knowledge. Is such a position compatible with the doctrine that an objective order of phenomena is directly revealed in experience? Surely it is.

No philosopher may deny those truths which lie plainly before the eyes of all men, and are imbedded in the very foundations of common experience and of science. He who would dare to maintain that the world is directly perceived, and that, hence, we immediately know the world just as it is, and know all about it, does not merit the compliment of a labored refutation. He is already refuted by palpable fact; we learn to know the world gradually, and have to expend upon the process much labor; our common knowledge of nature grows, science grows. He is a desperate

realist, and blind, indeed, who would undertake to deny such facts. Philosophy should understand and interpret common experience and science, not oppose them with preposterous hypotheses.

But, though our knowledge of the world grows, it still remains true that we do *learn to know the world*, to know not merely my ideas or the ideas of another, but the world — a something contrasted with everyone's ideas. There is found in experience the antithesis of subjective and objective, of inner and outer. What is directly apprehended is but little, yet that little serves as the basis of an imposing structure; were it not given, the structure could not be raised.

Moreover, in raising it, we do not build at random. I am not at liberty to piece out the deficiencies of sense-knowledge as it may happen to please me, making for myself any or every kind of a world. To do this is not to learn to know the world; it is, rather, to produce a castle in the air, a phantom which dissolves in the presence of the tests of truth which all men are able, within certain limits, to apply to things.

In raising our edifice, we have the foundation of the immediately given, and we have the rules of the inductive and the deductive logic. One may be impatient of waiting for the materials to serve as a foundation; one may generalize hastily or make disjointed deductions; error is possible, and error of divers sorts. But there is, at least, a theo-

retic possibility of attaining to unshakable truth. Even a doubt cannot rest upon nothing; there would be no error, in any sense that has a distinctive meaning, were there nothing with which to contrast it. As a matter of fact, we have something with which to contrast it; were it not so, the correction of error would be a meaningless expression.

I think it is worth while to dwell upon the truth that it is not well to emphasize excessively the uncertainty or unreality of human knowledge and the ignorance of man. Once, men were fond of doing this in the interests of theological orthodoxy. The scene has shifted, and we find it done now in various quarters in the interests of highly doubtful philosophical speculations. We are told that science is all very well in its own sphere, but that it cannot give us the real truth about things; or we are warned that the concepts of science are self-contradictory, and will not bear careful scrutiny. In so far as such statements are not based upon metaphysical considerations which we may well regard with suspicion, they constitute an attack upon that only which lies upon the confines of our knowledge. Molecules, atoms, the ether, and what not, may conceivably be swept into the shadowy realm of exploded beliefs. Nevertheless, our common experience of the worlds of matter and of mind would remain unshaken, and with it a vast number of truths which men have never

doubted and which men do not doubt. Nor would the accepted methods of the investigation of truth be done away with. Men have known for a very long time that it is easier to lift a heavy stone on the end of a lever than it is to raise it in the hands. No criticism of the fundamental concepts of mechanics can suggest a doubt here. And it does not sound sensible in such cases to say that our statement regarding the raising of the stone is not really true, but is only a convenient way of expressing something.

When we have reason to believe that what we have accepted as accurate statements of truth are either inaccurate or wholly false, we are not left in a mere chaos. We are left with the truth we had before we framed such statements. We must come back to common experience, and start out once more upon the toilsome road of observation and inference. Never are we without a world; we have discovered merely that we do not know quite so much about the world as we supposed we did.

There is, thus, nothing to prevent a man from being a modern realist, and, at the same time, from distinguishing *between the world as it is, and the particular stage in the knowledge of the world at which we may seem to have arrived*. But, in using the phrase "the world as it is," one must talk sense. He who understands it to mean some sort of an Unknowable must laugh at the efforts of

science to attain to truth. On the other hand, he who is carried away by his recognition of the fact that observation is not introspection, of the fact that we do have at times a direct experience of the objective order of phenomena, and who, on this inadequate basis, is betrayed into claiming that "the world as it is," is directly revealed in its fullness to the mind of man, is plainly guilty of extravagance. Did we know the world thus, there would be no disputes, no correction of errors, no growth in knowledge.

"The world as it is" is the goal of our endeavors. We start with some ground beneath our feet, and we have an approved method of procedure. That progress has been made ought to be admitted even by the most pessimistic. The history of science is not a mere list of revolutions, a series of unstable attempts at government succeeded in each case by a reign of terror. Were it no better than this, men would have been discouraged long ago. Some truths have been established; and there is not now, as there has never been, ground for universal doubt, notwithstanding the rejection of many cherished hypotheses.

IV

Is this Realism?

I fancy it will seem to some that a realism that admits as much as is admitted in the preceding

section can scarcely be called a realism at all. It distinguishes carefully, it is true, between the subjective and the objective; and refuses, apparently quite in harmony with common sense and science, to call what is revealed as belonging to the objective order *mental*. It insists that *the world* should not be confused with anyone's sensations and ideas.

But, after all, does it not admit that the world is revealed in phenomena of some sort, and that these phenomena are not independent of the bodily senses? Is not "the world as it is" simply a full and accurate account of the world in terms of such phenomena? What, then, shall we say about "the world as it was," before the senses of man and such creatures as man were developed? *Did objects exist as we describe them?*

It should be borne in mind that science does not hesitate to give, with reservations, an account of the state of the world as it was before man and his senses came into being. Whatever objection the man of science may bring against any such account, it is not that it is couched in terms intelligible to man. His objection is always that the account in question may not be a good one of its kind. But may we not raise the question which he appears to pass over as not worth raising? May we not ask: Were there objects in existence, as described? The very stuff which enters into their composition appears to be of compara-

tively modern manufacture; how could they have existed?

Of course, one may raise a somewhat similar question regarding those physical things which we do not actually perceive at any given moment. Does the other side of the moon exist? The words mean nothing except as we bring in the objective order of phenomena revealed in experience, accepting a here and a there, a system of things in space. And when I ask: What was the world like before man and his senses came into being? my question is wholly without significance unless I accept a system of things in time. In asking the question I have tacitly assumed that it is not mere noise to pronounce the word "before."

In other words, I have done exactly what is done by the plain man and the man of science — I have accepted the objective order of phenomena, the external world; but have found myself puzzled by the fact that this order is, in the case in question, expressed in certain terms. We have seen, however, that it is by no means necessary that it should be expressed in a particular set of terms. This is matter of common experience. I may perceive by sight a series of changes which are to me a revelation of the objective order; I may perceive such by touch; I may credit my neighbor with experiences of the objective order different from my own; I may guess at the experiences of lower

creatures. Nevertheless, I talk of the one world; I am concerned with the one system; I may overlook the particular form of the revelation, as it is overlooked, without disastrous results, in common life and in science.

When I ask whether this or that external thing *exists*, I am not concerned primarily with my seeing it or with my feeling it, or with the fact that some other creature may be percipient of it under some given form. I am concerned with the question *whether it is to be given a place in the objective order*. There must, of course, be evidence that things are to be assigned such a place, but the evidence may be of many kinds. Things which are perceived, things which are not perceived, things present, things past and gone, may have such a place. This is what men have always meant by external existence, and what they have instinctively distinguished from mere perception. No philosopher can claim to have discovered this truth; it has always been known, although men embarrassed with the difficulties of reflection sometimes misconceive it.

Hence, the man of science is entirely in the right in trying to give us an account of the past in terms of our experience, and in being content with that. If his account is perfect in its kind, it is as true an account as can be given. To ask for more is to make a preposterous demand. He who gives such an account is a realist; and the

philosopher who approves of his procedure is a realist, too.

Still, it may be insisted, is it not a strange and unnatural doctrine that the world as described by the geologist really existed as described, when it is admitted that the terms of the description must be recognized as related to the senses of man? *What* actually existed and functioned in the external world before there were sensations of color, of touch and movement, and all the rest?

He who keeps coming back to this has missed the force of what has been said just above. He finds it impossible to grasp what is meant by the word "existence," as it is universally used in speaking of physical things. No man of sense, in common life, would repudiate the revelations of geology, and say that it is a better description of what existed in past ages to call it the unknowable and the indescribable. No man of science would dream of doing this. Science concerns itself with phenomena and their relations, and we have no science — we have no knowledge — so long as we remain in the realm of the unintelligible. Nothing is natural save nature, and we know just so much of nature as is revealed to us in the phenomena of the objective and the subjective orders. It is not unnatural to maintain that phenomena may have a place in the objective order, and may be said to exist, merely on that account, and without any reference to their place

in the subjective order. Nor will the doctrine seem strange to one who has learned to distinguish clearly between the subjective and the objective. He who has not yet learned to do this will say that the geologist "projects" his sensations into the past, and will overlook the fact that, upon his hypothesis, there is nothing that can properly be called past.

One more point I must dwell upon before bringing this paper to a close. In speaking of "the new realism," I have not meant to defend just one particular type of doctrine, but rather to point out what must be admitted by any form of realism which would not fly in the face of certain rather palpable facts.

I have not dwelt, in the above, upon what I may call the intimate structure of experience. To my mind, the phenomena of the two orders discussed, and the relations which obtain between them, are all that we are called upon to take into account. But there are those who think they find, or must assume, in experience, something very different from phenomena and their relations. They may distinguish between the phenomena of which we are aware and the "awareness," co-ordinating the latter with the former; they may claim that there can be no experience except as we admit a "uniting" activity which knits phenomena into one whole; they may hold that the "self" is not to be resolved into any collocation

of phenomena, but is something wholly different, and something the functioning of which must be taken into account in every discussion of our knowledge. Those who are familiar with the history of speculative thought will realize that we are here brought face to face with a tendency which has assumed varying forms, and is strongly marked in minds of a certain type, or in those which have been subjected to certain influences.

I have no intention of combating any of these types of doctrine here. What I wish to do is to point out that there is nothing to prevent their adherents from embracing a realistic doctrine of the sort indicated above. Why may they not distinguish clearly between the phenomena of the objective order and those of the subjective order? Why may they not recognize that, when we refer phenomena to the former, we do not necessarily mean that anyone is perceiving them? Such men are usually idealists, but they are not compelled to involve themselves in the difficulties which follow in the train of idealism. If it is possible for a man to be a realist while admitting that the geologist's account of past ages is couched in terms of our present experience, why may they not admit that the physical world existed at a time when the "awareness," or the "uniting activity," or the "self," did not exist? They have only to distinguish clearly between the objective order itself and their assumed non-phenomenal

entity, and to use that order as a framework for the ordering of experience as a whole. If they do this, they are doing what is done in common life and in science — they are distinguishing between the existence of things and our perception of them. Without this distinction we should, indeed, find it hard to get on.

**DOES REALITY POSSESS PRACTICAL
CHARACTER?**

DOES REALITY POSSESS PRACTICAL CHARACTER?

BY JOHN DEWEY

I

RECENTLY I have had an experience which, insignificant in itself, seems to mean something as an index-figure of the present philosophic situation. In a criticism of the neo-Kantian conception that *a priori* functions of thought are necessary to constitute knowledge, it became relevant to deny its underlying postulate: viz., the existence of anything properly called mental states or subjective impressions precedent to all objective recognitions, and requiring accordingly some transcendental function to order them into a world of stable and consistent reference. It was argued that such so-called original mental data are in truth turning points of the readjustment, or making over, through a state of incompatibility and shock, of objective affairs. This doctrine was met by the cry of "subjectivism"! It had seemed to its author to be a criticism, on grounds at once naturalistic and ethical, of the ground proposition of subjectivism. Why this diversity of interpretations? So

far as the writer can judge, it is due to the fact that certain things characteristic of practical life, such things as lack and need, conflict and clash, desire and effort, loss and satisfaction, had been frankly referred to reality; and to the further fact that the function and structure of knowing were systematically connected with these practical features. These conceptions are doubtless radical enough; the latter was perhaps more or less revolutionary. The probability, the antecedent probability, was that hostile critics would have easy work in pointing out specific errors of fact and interpretation. But no: the simpler, the more effective method, was to dismiss the whole thing as anarchic subjectivism.

This was and remains food for thought. I have been able to find but one explanation: In current philosophy, everything of a practical nature is regarded as "merely" personal, and the "merely" has the force of denying legitimate standing in the court of cosmic jurisdiction. This conception seems to me the great and the ignored assumption in contemporary philosophy: many who might shrink from the doctrine if expressly formulated hang desperately to its implications. Yet surely as an underlying assumption, it is sheer prejudice, a culture-survival. If we suppose the traditions of philosophic discussion wiped out and philosophy starting afresh from the most active tendencies of to-day, — those striving in social life,

in science, in literature, and art, — one can hardly imagine any philosophic view springing up and gaining credence, which did not give large place, in its scheme of things, to the practical and personal, and to them without employing disparaging terms, such as phenomenal, merely subjective, and so on. Why, putting it mildly, should what gives tragedy, comedy, and poignancy to life, be excluded from things? Doubtless, what we call life, what we take to be genuinely vital, is not all of things, but it is a part of things; and is that part which counts most with the philosopher — unless he has quite parted with his ancient dignity of lover of wisdom. What becomes of philosophy so far as humane and liberal interests are concerned, if, in an age when the person and the personal loom large in politics, industry, religion, art, and science, it contents itself with this parrot cry of phenomenalism, whenever the personal comes into view? When science is carried by the idea of evolution into introducing into the world the principles of initiative, variation, struggle, and selection; and when social forces have driven into bankruptcy absolutistic and static dogmas as authorities for the conduct of life, it is trifling for philosophy to decline to look the situation in the face. The relegation, as matter of course, of need, of stress and strain, strife and satisfaction, to the merely personal and the merely personal to the limbo of something which is neither flesh, fowl, nor good

red herring, seems the thoughtless rehearsal of ancestral prejudice.

When we get beyond the echoing of tradition, the sticking point seems to be the relation of knowledge to the practical function of things. Let reality be in itself as "practical" as you please, but let not this practical character lay profane hands on the ark of truth. Every new mode of interpreting life — every new gospel — is met with the charge of antinomianism. An imagination bound by custom apprehends the restrictions that are relaxed and the checks that are removed, but not the inevitable responsibilities and tests that the new idea brings in. And so the conception that knowledge makes a difference in and to things looks licentious to those who fail to see that the necessity of doing well this business, of making the right difference puts intelligence under bonds it never yet has known: most of all in philosophy, the most gayly irresponsible of the procedures, and the most irresponsively sullen, of the historic fruits of intelligence.

Why should the idea that knowledge makes a difference to and in things be antecedently objectionable? If one is already committed to a belief that Reality is neatly and finally tied up in a packet without loose ends, unfinished issues or new departures, one would object to knowledge making a difference just as one would object to any other impertinent obtruder. But if

one believes that the world itself is in transformation, why should the notion that knowledge is the most important mode of its modification and the only organ of its guidance be *a priori* obnoxious?

There is, I think, no answer save that the theory of knowledge has been systematically built up on the notion of a static universe, so that even those who are perfectly free in accepting the lessons of physics and biology concerning moving energy and evolution, and of history concerning the constant transformation of man's affairs (science included), retain an unquestioning belief in a theory of knowledge which is out of any possible harmony with their own theory of the matters to be known. Modern epistemology, having created the idea that the way to frame right conceptions is to analyze knowledge, has strengthened this view. For it at once leads to the view that realities must themselves have a theoretic and intellectual complexion — not a practical one. This view is naturally congenial to idealists; but that realists should so readily play into the hands of idealists by asserting what, on the basis of a formal theory of knowledge, realities must be, instead of accepting the guidance of things in divining what knowledge *is*, is an anomaly so striking as to support the view that the notion of static reality has taken its last stand in ideas about knowledge. Take, for example, the most striking, because the extreme case — knowledge of a past event. It is

absurd to suppose that knowledge makes a difference to the final or appropriate content of knowledge: to the subject-matter which fulfils the requirements of knowing. In this case, it would get in its own way and trip itself up in endless regress. But it seems the very superstition of intellectualism to suppose that this fact about knowledge can decide what is the nature of that reference to the past which when rightly made is final. No doctrine about knowledge can hinder the belief — if there be sufficient specific evidence for it — that what we know as past may be something which has *irretrievably* undergone just the difference which knowledge makes.

Now arguments against pragmatism — by which I mean the doctrine that reality possesses practical character and that this character is most efficaciously expressed in the function of intelligence¹ — seem to fall blandly into this fallacy. They assume that to hold that knowledge makes a difference in existences is equivalent to holding that it makes a difference in the object *to be* known, thus defeating its own purpose; witless that the reality which is the appropriate object of knowledge in a given case

¹ This definition, in the present state of discussion, is an arbitrary or personal one. The text does not mean that "pragmatism" is currently used exclusively in this sense; obviously there are other senses. It does not mean it is the sense in which it *ought* to be used. I have no wish to legislate either for language or for philosophy. But it marks the sense in which it *is* used in this paper; and the pragmatic movement is still so loose and variable that I judge one has a right to fix his own meaning, provided he serves notice and adheres to it.

may be precisely a reality in which knowing has succeeded in making the needed difference. This question is not one to be settled by manipulation of the concept of knowledge, nor by dialectic discussion of its essence or nature. It is a question of facts, a question of what knowing exists as in the scheme of existence. If things undergo change without thereby ceasing to be real, there can be no *formal* bar to knowing being one specific kind of change in things, nor to its test being found in the successful carrying into effect of the kind of change intended. If knowing be a change in a reality, then the more knowing reveals this change, the more transparent, the more adequate, it is. And if all existences are in transition, then the knowledge which treats them as if they were something of which knowledge is a kodak fixation is just the kind of knowledge which refracts and perverts them. And by the same token a knowing which actively participates in a change in the way to effect it in the needed fashion would be the type of knowing which is valid. If reality be itself in transition—and this doctrine originated not with the objectionable pragmatist but with the physicist and naturalist and moral historian—then the doctrine that knowledge is reality making a particular and specified sort of change in itself seems to have the best chance at maintaining a theory of knowing which itself is in wholesome touch with the genuine and valid.

II

If the ground be cleared of *a priori* objections, and if it be evident that pragmatism cannot be disposed of by any formal or dialectic manipulations of "knowledge" or "truth," but only by showing that some specific things are not of the sort claimed, we may consider some common sense affiliations of pragmatism. Common sense regards intelligence as having a purpose and knowledge as amounting to something. I once heard a physicist, quite innocent of the pragmatic controversy, remark that the knowledge of a mechanic or farmer was what the Yankee calls gumption — acknowledgment of things in their belongings and uses, and that to his mind natural science was only gumption on a larger scale: the convenient cataloguing and arranging of a whole lot of things with reference to their most efficacious services. Popularly, good judgment is judgment as to the relative values of things: good sense is horse sense, ability to take hold of things right end up, to fit an instrument to an obstacle, to select resources apt for a task. To be reasonable is to recognize things in their offices as obstacles and as resources. Intelligence, in its ordinary use, is a practical term; ability to size up matters with respect to the needs and possibilities of the various situations in which one is called to do something; capacity to en-

visage things in terms of the adjustments and adaptations they make possible or hinder. Our objective test of the presence or absence of intelligence is influence upon behavior. No capacity to make adjustments means no intelligence; conduct evincing management of complex and novel conditions means a high degree of reason. Such conditions at least suggest that a reality-to-be-known, a reality which is the appropriate subject-matter of knowledge is reality-of-use-and-in-use, direct or indirect, and that a reality which is not in any sort of use, or bearing upon use, may go hang, *so far as knowledge is concerned*.

No one, I suppose, would deny that all knowledge issues in some action which changes things to some extent — be the action only a more deliberate maintenance of a course of conduct already instinctively entered upon. When I see a sign on the street corner I can turn or go on, knowing what I am about. The perceptions of the scientist need have no such overt or “utilitarian” uses, but surely after them he behaves differently, as an inquirer if in no other way; and the cumulative effect of such changes finally modifies the overt action of the ordinary man. That knowing, *after the event*, makes a difference of this sort, few I suppose would deny: if that were all pragmatism means, it would perhaps be accepted as a harmless truism. But there is a further question of fact: just how is the “consequent” action related to

the "precedent" knowledge? When *is* "after the event"? What degree of continuity exists? Is the difference between knowing and acting intelligently one of kind or simply one of dominant quality? How does a thing, if it is not already in change in the knowing, manage to issue at its term in action? Moreover, do not the changes actively effected constitute the whole *import* of the knowledge, and hence its final measure and test of validity? If it merely *happens* that knowing when it is done with passes into some action, by what miracle is the subsequent action so pat to the situation? Is it not rather true that the "knowledge" is instituted and framed in anticipation of the consequent issue, and, in the degree in which it is wise and prudent, is held open to revision during it? Certainly the moralist (one might quote, for example, Goethe, Carlyle, and Mazzini) and the common man often agree that full knowledge, adequate assurance, of reality is found only in the issue which fulfils ideas; that we have to do a doctrine to *know* its truth; otherwise it is only dogma or doctrinaire programme. Experimental science is a recognition that no idea is entitled to be termed knowledge till it has passed into such overt manipulation of physical conditions as constructs the object to which the idea refers. If one could get rid of his traditional logical theories and set to work afresh to frame a theory of knowledge on the basis of the procedure of the

common man, the moralist and the experimentalist, would it be the forced or the natural procedure to say that the realities which we *know*, which we are sure of, are precisely those realities that have taken shape in and through the procedures of knowing?

I turn to another type of consideration. Certainly one of the most genuine problems of modern life is the reconciliation of the scientific view of the universe with the claims of the moral life. Are judgments in terms of the redistribution of matter in motion (or some other closed formula) alone valid? Or are accounts of the universe in terms of possibility and desirability, of initiative and responsibility, also valid? There is no occasion to expatiate on the importance of the moral life, nor upon the supreme importance of intelligence within the moral life. But there does seem to be occasion for asking how moral judgments — judgments of the would and should — relate themselves to the world of scientific knowledge. To frame a theory of knowledge which makes it necessary to deny the validity of moral ideas, or else to refer them to some other and separate kind of universe from that of common sense and science, is both provincial and arbitrary. The pragmatist has at least tried to face, and not to dodge, the question of how it is that moral and scientific “knowledge” can both hold of one and the same world. And whatever the difficulties in his proffered solution, the conception that scientific

judgments are to be assimilated to moral is closer to common sense than is the theory that validity is to be denied of moral judgments because they do not square with a preconceived theory of the nature of the world to which scientific judgments must refer. And all moral judgments are about changes to be made.

III

I turn to one affiliation of the pragmatic theory with the results of recent science. The necessity for the occurrence of an event in the way of knowledge, of an organism which reacts or behaves in a specific way, would seem to be as well established as any scientific proposition. It is a peculiar fact, a fact fit to stir curiosity, that the rational function seems to be intercalated in a scheme of practical adjustments. The parts and members of the organism are certainly not there primarily for pure intellection or for theoretic contemplation. The brain, the last physical organ of thought, is a part of the same practical machinery for bringing about adaptation of the environment to the life requirements of the organism, to which belong legs and hand and eye. That the brain frees organic behavior from complete servitude to immediate physical conditions, that it makes possible the liberation of energy for remote and ever expanding ends is, indeed, a precious fact, but not

one which removes the brain from the category of organic devices of behavior.¹ That the organ of thinking, of knowledge, was at least originally an organ of conduct, few, I imagine, will deny. And even if we try to believe that the cognitive function has supervened as a different operation, it is difficult to believe that the transfiguration has been so radical that knowing has lost all traces of its connection with vital impulse. But unless we so assume, have we any alternatives except to hold that this continual presence of vital impulse is a disturbing and refracting factor which forever prevents knowledge from reaching its own aim; or else that a certain promoting, a certain carrying forward of the vital impulse, importing certain differences in things, *is* the aim of knowledge?

The problem cannot be evaded — save ostrich wise — by saying that such considerations are “merely genetic,” or “psychological,” having to do only with the origin and natural history of knowing. For the point is that the organic reaction, the behavior of the organism, affects the *content* of awareness. The subject-matter of all awareness is thing-related-to-organism — related as stimulus direct or indirect or as material of response, present or remote, ulterior or achieved.

¹ It is interesting to note how the metaphysical puzzles regarding “parallelism,” “interaction,” “automatism,” the relation of “consciousness” to “body,” evaporate when one ceases isolating the brain into a peculiar physical substrate of mind at large, and treats it simply as one portion of the body as the instrumentality of adaptive behavior.

No one — so far as I know — denies this with respect to the perceptual field of awareness. Pains, pleasures, hunger, and thirst, all “secondary” qualities, involve inextricably the “interaction” of organism and environment. The perceptual field is distributed and arranged as the possible field of selective reactions of the organism at its centre. Up and down, far and near, before and behind, right and left, hard and soft (as well as white and black, bass and alto), involve reference to a centre of behavior.

This material has so long been the stock in trade of both idealistic arguments and proclamations of the agnostic “relativity” of knowledge that philosophers have grown weary of listening. But even this lethargy might be quickened by a moderate hospitality to the pragmatic interpretation. That red, or far and near, or hard and soft, or big and little, involve a relation between organism and environment, is no more an argument for idealism than is the fact that water involves a relation between hydrogen and oxygen.¹ It is, however, an argument for the ultimately practical value of these distinctions — that they are *differences* made in what things would have been without organic behavior — differences made not by “consciousness” or “mind,” but by the organism as the active centre of a system of activities. Moreover, the whole agnostic sting of the doctrine

¹ I owe this illustration to my colleague, Dr. Montague.

of "relativity" lies in the assumption that the ideal or aim of knowledge is to repeat or copy a prior existence — in which case, of course, the making of contemporaneous differences by the organism in the very fact of awareness would get in the way and forever hinder the knowledge function from the fulfilment of its proper end. Knowledge, awareness, in this case suffers from an impediment which no surgery can better. But if the aim of knowing be precisely to make *certain* differences in an environment, to carry on to *favorable issue*, by the readjustment of the organism, certain changes going on indifferently in the environment, then the fact that the changes of the organism enter pervasively into the subject-matter of awareness is no restriction or perversion of knowledge, but part of the fulfilment of its end.

The only question would then be whether the *proper* reactions take place. The whole agnostic, positivistic controversy is flanked by a single move. The issue is no longer an ideally necessary but actually impossible copying, *versus* an improper but unavoidable modification of reality through organic inhibitions and stimulations: but it is the right, the economical, the effective, and, if one may venture, the useful and satisfactory reaction *versus* the wasteful, the enslaving, the misleading, and the confusing reaction. The presence of organic responses, influencing and modifying every content, every subject-matter of awareness, is the

undoubted fact. But the significant thing is the *way* organic behavior enters in — the *way* it influences and modifies. We assign very different values to different types of “knowledge,” — or subject-matters involving organic attitudes and operations. Some are only guesses, opinions, suspicious characters; others are “knowledge” in the honorific and eulogistic sense — science; some turn out mistakes, blunders, errors. Whence and how this discrimination of character in what is taken at its own time to be good knowledge? Why and how is the matter of some “knowledge” genuine-knowing and of other mis-knowing? Awareness is itself a blanket term, covering, in the same bed, delusion, doubt, confusion, ambiguity, and definition, organization, logical conclusiveness assured by evidence and reason. Any naturalistic or realistic theory is committed to the idea that all of these terms bear impartially the same relation to things considered as sheer existences. What we must have in any case is the same existences — the same in kind — only differently arranged or linked up. But why then the tremendous difference in value? And if the unnaturalist, the non-realist, says the difference is one of existential kind, made by the working here malign, there benign, of “consciousness,” “psychical” operations and states, upon the existences which are the direct subject-matter of knowledge, there is still the problem of discriminating the conditions and nature of the

respective beneficent and malicious interventions of the peculiar "existence" labelled consciousness.¹ The realness of error, ambiguity, doubt and guess poses a problem. It is a problem which has perplexed philosophy so long and has led to so many speculative adventures, that it would seem worth while, were it only for the sake of variety, to listen to the pragmatic solution. It is the business of that organic adaptation involved in all knowing to make a *certain* difference in reality, but *not* to make any old difference, any casual difference. The right, the true and good, difference is that which carries out satisfactorily the specific purpose for the sake of which knowing occurs. All manufactures are the product of an activity, but it does not follow that all manufactures are equally good. And so all "knowledges" are differences made in things by knowing, but some differences are not calculated or wanted in the knowing, and hence are disturbers and interlopers when they come — while others fulfil the intent of the knowing, being in such harmony with the consistent behavior of the organism as to reinforce and enlarge its functioning. A mistake is literally a mishandling; a doubt is a temporary suspense and vacillation of reactions; an ambiguity is the tension of alternative but incompatible mode of

¹ Of course on the theory I am interested in expounding, the so-called action of "consciousness" means simply the organic releases in the way of behavior which are the conditions of awareness, and which also modify its content.

responsive treatment; an inquiry is a tentative and retrievable (because intra-organic) mode of activity entered upon prior to launching upon a knowledge which is public, ineluctable — without anchors to windward — *because* it has taken physical effect through overt action.

It is practically all one to say that the norm of honorable knowing is to make no difference in *its* object, and that its aim is to attain and buttress a specific kind of difference in reality. Knowing fails in its business if it makes a change in its *own* object — that is a mistake; but its own object is none the less a prior existence changed in a certain way. Nor is this a play upon the two senses — end and subject-matter — of “object.” The organism has its appropriate functions. To maintain, to expand adequate functioning is its business. This functioning does not occur *in vacuo*. It involves co-operative and readjusted changes in the cosmic medium. Hence the appropriate subject-matter of awareness is not reality at large, a metaphysical heaven to be mimeographed at many removes upon a badly constructed mental carbon paper which yields at best only fragmentary, blurred, and erroneous copies. Its proper and legitimate object is that relationship of organism and environment in which functioning is most amply and effectively attained; or by which, in case of obstruction and consequent needed experimentation, its later eventual free course is

most facilitated. As for the other reality, metaphysical reality at large, it may, so far as awareness is concerned, go to its own place.

For ordinary purposes, that is for practical purposes, the truth and the realness of things are synonymous. We are all children who say "really and truly." A reality which is so taken in organic response as to lead to subsequent reactions that are off the track and aside from the mark, while it is, existentially speaking, perfectly real, is not *good* reality. It lacks the hallmark of value. Since it is a certain *kind* of object which we want, that which will be as favorable as possible to a consistent and liberal or growing functioning, it is this kind, the *true* kind, which for us monopolizes the title of reality. Pragmatically, teleologically, this identification of truth and "reality" is sound and reasonable: rationalistically, it leads to the notion of the duplicate versions of reality, one absolute and static because exhausted; the other phenomenal and kept continually on the jump because otherwise its own inherent nothingness would lead to its total annihilation. Since it is only genuine or sincere things, things which are good for what they pretend to in the way of consequences, that we want or are after, *morally* they alone are "real."

IV

So far we have been dealing with awareness as a fact — a fact there like any fact — and have been concerned to show that the subject-matter of awareness is, in any case, things in process of change; and in such change that the knowing function takes a hand in trying to guide it or steer it, so that *some* (and *not* other) differences accrue. But what about the awareness itself? What happens when it is made the subject-matter of awareness? What sort of a thing is it? It is, I submit, mere sophistication (futile at that), to argue either that we cannot become aware of awareness without involving ourselves in an endless regress, or that whenever we are aware of anything we are thereby necessarily aware of awareness once for all, so that it has no character save this purely formal and empty one. Taken concretely, awareness is an event with certain specifiable conditions. We may indeed be aware of it formally, as a bare fact, just as we may be cognizant of an explosion without knowing anything of its nature. But we may also be aware of it in a curious and analytic spirit, undertaking to study it in detail. This inquiry, like any other inquiry, proceeds by determining conditions and consequences. Here awareness is a characteristic fact, presenting to inquiry its own

characteristic ear-marks; and a valid knowledge of awareness is the same sort of thing as valid knowledge of the spectrum or of a trotting horse; it proceeds generically in the same way and must satisfy the same generic tests.

What, then, is awareness found to be? The following answer, dogmatically summary in form, involves positive difficulties, and glides over many points where our ignorance is still too great. But it represents a general trend of scientific inquiry, carried on, I hardly need say, on its own merits without respect to the pragmatic controversy. Awareness means *attention*, and attention means a crisis of some sort in an existent situation; a forking of the roads of some material, a tendency to go this way and that. It represents something the matter, something out of gear, or in some way menaced, insecure, problematical and strained. This state of tension, of ambiguous indications, projects and tendencies, is not merely in the "mind," it is nothing merely emotional. It is in the facts of the situation as transitive facts; the emotional or "subjective" disturbance is just a part of the larger disturbance. And if, employing the *language* of psychology, we say that attention is a phenomenon of conflicting habits, being the process of resolving this conflict by finding an act which functions all the factors concerned, this language does not make the facts "merely psychological" — whatever that

means.¹ The habits are as biologic as they are "personal," and as cosmic as they are biologic. They are the total order of things expressed in one way; just as a physical or chemical phenomenon is the same order expressed in another way. The statement in terms of conflict and readjustment of habits is at most one way of locating the disturbance in *things*; it furnishes no substitute for, or rival of, reality, and no "psychical" duplication.

If this be true, then awareness, even in its most perplexed and confused state, a state of maximum doubt and precariousness of subject-matter, means things entering, *via* the particular thing known as organism, into a peculiar condition of differential — or additive — change. How can we refuse to raise and consider the question of how things in this condition are related to the prior state which emerges into it, and to the subsequent state of things into which it issues?²

Suppose the case to be awareness of a chair. Suppose that this awareness comes only when there is some problematic affair with which the

¹ What does it mean? Does the objectivity of fact disappear when the biologist gives it a biological statement? Why not object to his conclusions on the ground that they are "merely" biological?

² It is this question of *the relation to one other of different successive states of things* which the pragmatic method substitutes for the epistemological inquiry of how one sort of existence, purely mental, temporal but not spatial, immaterial, made up of sublimated gaseous consciousness, can get beyond itself and have valid reference to a totally different kind of existence — spatial and extended; and how it can receive impressions from the latter, etc., — all the questions which constitute that species of confirmed intellectual lock-jaw called epistemology.

chair is in some way — in whatever degree of remoteness — concerned. It may be a wonder whether that is a chair at all; or whether it is strong enough to stand on; or where I shall put it; or whether it is worth what I paid for it; or, as not infrequently happens, the situation involved in uncertainty may be some philosophic matter in which the perception of the chair is cited as evidence or illustration. (Humorously enough, the awareness of it may even be cited in the course of a philosophic argument intended to show that awareness has nothing to do with situations of incompleteness and ambiguity.) Now what of the change the chair undergoes in entering this way into a situation of perplexed inquiry? Is this any part of the genuineness of that chair with which we are concerned? If not, where is the change found? In something totally different called “consciousness”? In that case how can the operations of inquiry, of observation and memory and reflection, ever have any assurance of getting referred back to the *right* object? Positively the presumption is that the *chair-of-which-we-are-speaking*, is the chair *of-which-we-are-speaking*; it is the *same* thing that is out there which is involved also in the doubtful situation. Moreover, the reference to “consciousness” as the exclusive locus of the doubt only repeats the problem, for “consciousness,” by the theory under consideration, means, after all, only the

chair *as* concerned in the problematical situation. The *physical* chair remains unchanged, you say. Surely, if as is altogether likely, what is *meant* by physical is precisely *that part* of the chair as object of total awareness which remains unaffected, for certain possible purposes, by entering for certain other actual purposes into the situation of awareness. But how can we segregate, *antecedently* to experimental inquiry, the "physical" chair from the chair which is now the object to be known; into what contradictions do we fall when we attempt to define the object of one awareness not in its own terms, but in terms of a selected type of object which is the appropriate subject-matter of some other cognizance!

But awareness means inquiry as well as doubt — these are the negative and positive, the retrospective and the prospective relationships of the thing. This means a genuinely *additive* quale — one of readjustment in prior things.¹ I know the dialectic argument that nothing can assume a new relation, because in order to do so it must already be completely related — when it comes from an absolutist I can understand why he holds it, even if I cannot understand the idea itself. But apart from this conceptual reasoning we must follow the lead of our subject-matter; and when we find a thing assuming new relations

¹ We have arrived here, upon a more analytic platform, at the point made earlier concerning the fact that knowing *issues* in action which changes things.

in the process of inquiry, must accept the fact and frame our theory of things and of knowing to include it, not assert that it is impossible because we already have a theory of knowledge which precludes it. In inquiry, the existence which has become doubtful always undergoes experimental reconstruction. This may be largely imaginative or "speculative." We may view certain things *as if* placed under varying conditions, and consider what then happens to them. But such differences are really transformative so far as they go, — and besides, such inquiries never reach conclusions finally justifiable. In important and persistent inquiry, we insist upon something in the way of actual physical making — be it only a diagram. In other words, *science*, or knowing in its honorific sense, is experimental, involving physical construction. We insist upon something being *done about* it, that we may see how the idea when carried into effect comports with the other things through which our activities are hedged in and released. To avoid this conclusion by saying that knowing makes no difference in the "truth," but merely is the preliminary exercise which discovers it, is that old friend whose acquaintance we have repeatedly made in this discussion: the fallacy of confusing an existence anteceding knowing with the object which terminates and fulfils it. For knowing to make a difference in its own final term is gross self-stultification; it is none the less so when

the aim of knowing is precisely to guide things straight up to this term. When "truth" means the accomplished introduction of certain new differences into conditions, why be foolish enough to make other and more differences, which are not wanted since they are irrelevant and misleading?

Were it not for the teachings of sad experience, it would not be necessary to add that the change in environment made by knowing is not a total or miraculous change. Transformation, readjustment, reconstruction all imply prior existences: existences which have characters and behaviors of their own which must be accepted, consulted, humored, manipulated or made light of, in all kinds of differing ways in the different contexts of different problems. Making a difference in reality does not mean making any more difference than we find by experimentation can be made under the given conditions—even though we may still hope for different fortune another time under other circumstances. Still less does it mean making a thing into an unreality, though the pragmatist is sometimes criticised as if any change in reality must be a change into non-reality. There are difficulties indeed, both dialectic, and real or practical, in the fact of change—in the fact that only a permanent can change and that change is alteration of a permanent. But till we enjoin botanists and chemists from referring to changes and transformations in their subject-matter on the ground that for any-

thing to change means for it to part with its reality, we may as well permit the logician to make similar references.

V

Sub specie aeternitatis? or *sub specie generationis?* I am susceptible to the æsthetic charm of the former ideal — who is not? There are moments of relaxation: there are moments when the demand for peace, to be let alone and relieved from the continual claim of the world in which we live that we be up and doing something about it, seems irresistible; when the responsibilities imposed by living in a moving universe seem intolerable. We contemplate with equal mind the thought of the eternal sleep. But, after all, this is a matter in which reality and not the philosopher is the court of final jurisdiction. Outside of philosophy, the question seems fairly settled; in science, in poetry, in social organization, in religion — wherever religion is not hopelessly at the mercy of a Frankenstein philosophy which it originally called into being as its own slave. Under such circumstances there is danger that the philosophy which tries to escape the form of generation by taking refuge under the form of eternity will only come under the form of a by-gone generation. To try to escape from the snares and pitfalls of time by recourse to traditional problems and interests

— rather than that let the dead bury their own dead. Better it is for philosophy to err in active participation in the living struggles and issues of its own age and times than to maintain an immune monastic impeccability, without relevancy and bearing in the generating ideas of its contemporary present. In the one case, it will be respected, as we respect all virtue that attests its sincerity by sharing in the perplexities and failures, as well as in the joys and triumphs, of endeavor. In the other case, it bids fair to share the fate of whatever preserves its gentility, but not its activity, in descent from better days; namely, to be snugly ensconced in the consciousness of its own respectability.

**A FACTOR IN THE GENESIS OF
IDEALISM**

A FACTOR IN THE GENESIS OF IDEALISM

BY WENDELL T. BUSH

IN 1684 was published at Amsterdam a little book, probably seldom read, entitled "Recueil de quelques pièces curieuses concernant la philosophie de Monsieur Descartes," attributed to Pierre Bayle. The collection comprises six short pieces together with an introduction by the compiler; and although these viewed as systematic philosophy are of no particular interest, yet as a specimen of the discussions which gathered about the Cartesian movement toward the end of the seventeenth century, more than thirty years after the death of Descartes, and as an index of the intellectual situation in which the Cartesian philosophy was obliged to work out its development, the *Recueil* may be deserving of some attention.

The editor laments the difficulty of publishing books of liberal tendencies in France, where the Inquisition "is making rapid progress." Publication without the official permit, extremely difficult to obtain for liberal books, meant that the work thus issued could hardly be circulated. The contents of the *Recueil* being on this account

extremely rare, the compiler caused them to be published in Holland, where, inasmuch as the Reformation had been politically successful, works on philosophy were not liable to be suppressed in the interest of Thomas Aquinas and the French monarchy.

The first piece in the collection is the text of an agreement between the Jesuits and the fathers of the Oratory, according to which the latter undertook to cease teaching certain opinions which the former did not approve, and in particular to cease teaching the Cartesian philosophy. The paragraphs which bear directly upon the philosophy of Descartes are as follows: “Dans la physique l’on ne doit point s’écloigner de la physique ni des principes de physique d’Aristote communément reçus dans les collèges pour s’attacher à la doctrine nouvelle de Monsieur Descartes, que le Roi a défendu qu’on enseignât pour de bonnes raisons. L’on doit enseigner: 1. Que l’extension actuelle et extérieure n’est pas de l’essence de la matière. 2. Qu’en chaque corps naturel il y a une forme substantielle réellement distinguée de la matière. 3. Qu’il y a des accidens réels et absolus inhérens à leurs sujets, réellement distingués de toute autre substance, et qui peuvent surnaturellement être sans aucun sujet. 4. Que l’âme est réellement présente et unie à tout le corps et à toutes les parties du corps. 5. Que la pensée et la connaissance n’est pas de l’essence de l’âme

raisonnable. 6. Qu'il n'y a aucune répugnance que Dieu puisse produire plusieurs mondes à même temps. 7. Que le vide n'est pas impossible." These propositions are preceded by certain requirements in regard to instruction in theology, the purpose of which can only have been to weaken certain doctrines of Augustine, to whom the Oration was much attached. It is significant that Augustine and Descartes are here included under a common prohibition.

The second piece is in the nature of a reply to the above agreement; it criticises particularly the hostility of the Jesuits toward Saint Augustine and their endeavor in the above-mentioned contract to undermine his authority.

The editor's explanation of the third piece I will transcribe. "To better understand the history of the other pieces, you must know that in the year 1680 a Jesuit of Caen, the Père de Valois, assuming the name Louis de la Ville, published a treatise entitled *Sentimens de Monsieur Descartes touchant l'essence et les propriétés du corps opposés à la doctrine de l'église et conformes aux erreurs de Calvin sur le sujet de l'Eucharistie*. He dedicated it to the French clergy and exhorted the prelates to repair at once the great evil with which the church was threatened by the Cartesians. He begged them in the name of France to pronounce sentence of condemnation against Cartesianism, and in order to influence them with a reason which he knew to

be all powerful in its effects upon their minds, he referred to a decree of the council of state and to a *lettre de cachet* which had forbidden the teaching of a Cartesian professor. The book alarmed the entire following of this philosophy; M. Régis, the celebrated Cartesian, was obliged to break off his lectures in Paris, and in addition, was unable to obtain a license to publish a work on philosophy which he had long since completed. Each feared lest he be obliged to sign a declaration or be excommunicated as a heretic. Thereupon M. Bernier . . . caused to be printed secretly a little book, the third piece in the collection, of which he distributed a few copies to his friends and even to a few prelates. He agrees that critics may say whatever they please of the Cartesians, and he declares strongly against some of their opinions in order the better to make his peace; and for the rest, having as much reason as they to fear the charge of heresy in the matter of transubstantiation, he does what he can to establish his innocence." In general M. Bernier's defence of the Cartesians takes the line, not of denying their obligation to make their metaphysics conform to the Council of Trent, but of arguing that their Jesuit critic has not correctly stated the orthodox position. This critic had written with a particular animus against Malebranche, and a portion of the essay discusses the nature of original sin in infants. M. Bernier seeks to justify Malebranche on this point against M. de la Ville.

With such problems was the philosophy of that day forced to occupy itself.

The fourth essay in the *Recueil* is a *Mémoire pour expliquer la possibilité de la transubstantiation*, attributed to Malebranche. This essay, the editor observes, was regarded with all the more suspicion "since it explained the Roman Eucharist according to the hypotheses of the new philosophy in a way wholly different from that to be found in the writings of M. Descartes or of M. Rohault or of M. Maignan." This new explanation was evidently intended to meet the difficulty which the imagination encountered in assenting to the orthodox postulate that wherever there was a consecrated host there existed the complete and entire body of Christ. It is a unique case of the one and the many, but since, says Malebranche, in any product of art the unity of the created thing is derived from the will of its creator, so the apparent diversity of many bits of bread and many portions of wine is no hindrance to their essential unity.

The fifth piece is by a professor at Sedan, presumably Bayle himself, and is a refutation of M. de la Ville's efforts to disprove by the "light of reason" the Cartesian theory of the essence of body. And now we come to the editor's statement of his purpose in publishing this collection. "It is clear that the Council of Trent has decided not only that the body of Christ is present wherever there are consecrated hosts, but also that all the

portions of his body interpenetrate each other. It is clear from the book of M. de la Ville that this decision is wholly incompatible with the doctrine that the entire essence of matter is comprised in its extension. It is clear from the comments of M. Bernier and of Malebranche that their manner of explaining transubstantiation is not that which is clearly contained in the words of the Council. Finally it is clear from the dissertation of the professor of Sedan that it is as impossible for matter to be penetrated as it is for two things to be equal when one is greater than another. It is therefore clear that the Council of Trent decided falsely when it spoke of the presence of Our Lord upon the altars." If only the Roman Catholics would avail themselves of clear and distinct ideas in this matter, says Bayle, they would recognize their errors and might then welcome the co-operation of the Cartesians in formulating a doctrine of the Eucharist to which the followers of Calvin could assent.

One essay remains. It is a series of ten meditations modelled on the *Méditations* of Descartes. A rather characteristic sentence may be quoted. "My will . . . is an impression or a movement that God has put into me by which he impels me toward himself as all good and all being."

These little pieces were put together by a very gifted man with a perfectly serious purpose. He did not regard them, apparently, as unusual or

eccentric. On the contrary, one's impression is that he regarded them as entirely normal and reasonable concerning a point of the utmost consequence. Certainly if Bayle had not regarded the transubstantiation controversy as concerned with a genuine and vital problem he would have shown a capacity for intellectual detachment altogether exceptional. And if he had regarded the problem as having a social and political significance, rather than a truly metaphysical one, he could not have discussed it without reference to its metaphysical presuppositions. And now for the reflections which such a book may stimulate.

When Descartes took a hand in helping along the transition from the Middle Age there was much concern lest he leave no place for saving an article of faith to which the Middle Age had been particularly attached, — the doctrine of transubstantiation. This was a really burning issue; no philosopher who desired a hearing in the French world of letters could afford to be identified with the party of Calvin, and uncertainty on the question of the Eucharist pointed toward uncomfortable heresy. Even Descartes, although not believing in the independent accidents, was persuaded to make two attempts at reconciling his conception of substance with the necessities of dogma, and several of the minor Cartesians made enthusiastic endeavors to explain the miracle of the Mass by the principles of the new philosophy. The significance of these

undertakings, seemingly so unimportant for philosophy, is by no means slight for the history of it.

In the process of putting off mediævalism, western Europe endured the throes which we call by the name of the Protestant Reformation. The wars of religion in France had, to be sure, come to an end, but the sentiments which those wars had kept alive were still active, and if the fighting had not been really for points of dogma, it was nevertheless under the banner of religious demands; and the party antipathies and social rivalries incidental to the whole situation necessarily kept men's interest tense and keen in whatever points of theology might seem to be involved. The dogma at the focus of things was the Eucharist, and the Council of Trent had reaffirmed the orthodox position on this matter with all the emphasis at its command. While many speculative minds might be a little weary of St. Thomas, they were the more anxious for a plausible propping of their faith; for the Reformation had brought with it a real quickening of religious interest, and the dogma about which so much passion had gathered got the benefit of this revival. How should a thing so important, seemingly so fundamental, as transubstantiation have its existence solely in men's pious and inquisitorial minds? For it must be remembered that people were really excited about transubstantiation, and the natural question to ask concerning a new kind of philosophy was where it stood on

this question. A man of such rare independence and self-control as Descartes, with a bent of genius which impelled him to the exact study of nature, and with none of the obligations incidental to a university position, could be indifferent to the metaphysics of the Eucharist; but even so, such indifference would probably result rather from concentration upon his proper business than from an insight into the mythical nature of the problem; and Descartes wished and tried to remove incongruities between his philosophy and the popular faith. With the most sincere good will, however, the thing was impossible. The claim that extension constituted the essence of bodies would not square with the necessities of the Tridentine dogma. This did not seriously disturb Descartes. He could seclude himself in Holland and carry on patient researches, withholding his conclusions, if that seemed best, for publication after his death. But the subsequent development of his doctrines he must leave to others. How will it be when the followers of the master lack his scientific genius, and are, for the most part, university professors or churchmen under the French monarchy at the epoch of its culmination?

This reference to transubstantiation may serve to remind us of the atmosphere in which "modern" philosophy, to speak conventionally, had its beginnings on the continent, and to orient us a little in a period that intellectually must have been the

most exciting one since the time of Augustine. The equanimity with which we to-day contemplate the group of rival metaphysical theories was then undreamed of. The tradition was of a single body of doctrine which had all the importance of truth itself. The blend of Aristotle and Aquinas, secure in the universities, was not to be ousted from its strongholds by a new philosophical way of putting things, unless the new way took account of the problems that seemed important, and satisfied certain dominant interests better than the Peripatetic tradition could do. It was quite inevitable therefore that, under the conditions provided, metaphysics should continue to be concerned chiefly with what we may call theological problems. Had the Cartesians been anxious to avoid theological issues, a persecution conducted by theological conservatives made such detachment impossible. Even in Holland, the new philosophy was denounced as contrary to the Bible and inimical to the civil power. Descartes himself was called a Jesuit and an atheist. In France Cartesianism was identified with Calvinism and, what was more dangerous, with Jansenism. Reference has already been made to the agreement according to which the Oratory, to avoid serious calamity, bound itself to abjure Descartes, and to mutilate its interpretation of Augustine.

I should perhaps apologize for dwelling upon facts and conditions generally known and acces-

sible to all in books which describe the period. My excuse is that the bearing of these facts and conditions upon the evolution of metaphysical concepts has not been generally appreciated. Historians have not been sufficiently concerned with philosophy, nor philosophers with history, to estimate the influence of the sentiments of the later Reformation upon subsequent philosophy, and to relate certain modern results to these sources.

But to resume: the Cartesians did not wish to avoid theological problems, for these seemed the most important of all problems, and to provide the special business of philosophy. The innovators in metaphysics were engaged in combating the system of philosophy endorsed by the Council of Trent, and Cartesianism had, accordingly, a certain kinship with the Reformation doctrines, in so far as both Cartesians and Calvinists were agents in the same process of historical transition.

The harrying of the Cartesians had its natural result. In Holland they tried to prove that Descartes was in the Bible and in France that he was in Aristotle. Louis XIV sought to make atonement by persecuting nonconformity. It was no light matter for a man of prominence to defend opinions obnoxious to the Jesuit order. Bouillier (*Histoire de la philosophie Cartésienne*) states that the most active persecution of the Cartesians was during the period 1675-1690. Although this per-

secution did not diminish the vogue of Cartesianism, it did serve to keep metaphysics tied up to theology. The whole situation could not fail to develop habits of mind such that the problems of philosophy expressed a theological tradition rather than a free curiosity about nature and an interest in man's natural welfare.

Very significant is the method by which the opinions of Descartes were first publicly taught. For a considerable time they had to be introduced under the cloak of St. Augustine. One of the arguments in support of the theory of animal automatism is characteristic. Since animals have not sinned, God would be unjust if they were to suffer pain. And the facility with which Cartesianism could be taught under the authority of Augustine points to a feature of Descartes's thought that is in this connection of particular consequence.

Descartes in all his writings forces the idea of God to the front, and seeks to give the impression that the validity of all subsequent conclusions depends upon the certainty of God's existence. All scientific knowledge of nature and man is made to appear as contingent upon a knowledge of God. This aspect of the new doctrine appears to have given the liveliest satisfaction, and it is easily understood as soon as we see how it reproduces the most fundamental conviction of the Reformation. This was the Augustinian exaltation of God and belittling of man. It was Augustine who supplied the patristic

authority for the Reformation by his doctrine of predestination, from which it followed that the sacraments must be wholly ineffective as efforts to interfere in the distribution of grace. Man with the burden of Adam's sin upon him was quite incapable of bringing his will into agreement with God's will, without the gift of undeserved grace. The *opera operata* could avail nothing. All depended upon God in the matter of salvation, as it did in the Cartesian epistemology, and therefore it was that Descartes, although he was no Calvinist, yet, being opposed to mediævalism, could not fail to be impressed with this, for his day, modern sentiment. For although the Reformation in France had failed politically, yet the Augustinianism of the movement had been taken up by those of the clergy who, while aiming at the most perfect orthodoxy, yet wished to purify the church of all that had given just ground for criticism. This really spiritual wave of the Catholic reaction bore Descartes into the haven of popular approval in France. His demonstrations of the existence of God and the immortality of the soul gave such satisfaction that Cartesianism came to be regarded as the precious ally of conservative religious faith. But if the backing of the Oratory was worth so much to Cartesianism, it could not fail to influence its subsequent tendencies by keeping the attention of "philosophers" concentrated upon the metaphysical presuppositions involved in the idea of

the soul, separable from the body, the vehicle of sin and the object of grace.

There is nothing remarkable, then, in recognizing that the opinions, on what seemed fundamental problems, of the men who were engaged in winning an intellectual emancipation from Thomas Aquinas, constituted the natural metaphysics of what we call the Protestant Reformation. The affinity with Augustine was immediately recognized and made use of; in the Occasionalists we find very frankly stated that entire dependence of man upon God which the reformers were so fond of emphasizing, while both the Cartesians and the Huguenot party were fighting the same enemy, the authority of the scholastic tradition. The effect of it all is that modern philosophy has been, in the main, not free inquiry but Protestant metaphysics, and its central problem, the problem of knowledge, has been determined, not by an examination of cognitive experience but by an elaboration of traditional preconceptions in harmony with the dominant interests of the later Reformation. The problem of knowledge naturally arose as soon as the Cartesian ideas of substance made knowledge a mystery. The definition of the soul, however, after the manner of "conscious substance," denying to it all power of affecting or being affected by the world about it, actually proved to be particularly gratifying to a very large public, as it seemed to be a sufficient demonstration of the soul's im-

mortality; and it was to be expected that these presuppositions which made knowledge something wholly unintelligible should be nursed and fortified. The immense vogue enjoyed by Malebranche, the pride in his development of Cartesianism, the authority conceded to his pious metaphysics, reveal clearly enough the inevitable current.

Another circumstance which kept philosophy in the land of impassioned mythology was the burden of responsibility for Spinoza. "Is Descartes the father and the accomplice of Spinoza, or is his philosophy the antidote of Spinozism? Is Descartes the builder or the destroyer of the new doctrine, *Spinozismi architectus aut eversor*?" according to the titles of polemical writings on opposite sides. This was the question debated from the start with singular vivacity between the Cartesians of Holland and their opponents. Moreover, the two parties competed with one another in casting abuse and anathemas at the wretched author, and the Cartesians exclaimed the louder, in order to avert from themselves the suspicion of having anything in common with this man."¹ And in Leibniz we find a man of altogether exceptional gifts dishing up the old wine of mediæval faith, and seeking to reconcile the two confessions on the problem of the Eucharist.

Meanwhile, British philosophy, starting with the same conception of knowledge, as the states of

¹ Bouillier: "Histoire de la philosophie Cartésienne," Vol. I, p. 416.

an ambiguous substance, developed in an environment characterized by the attempt to base theological guarantees upon innate ideas, by the deistic controversy, and by a certain influence of Cartesian thought. That little discourse between five or six friends which brought the participants to a stand and was the occasion of Locke's "Essay" was concerned, we are told, with the principles of morality and revealed religion. However empirical Locke's own temperament may have been, he was quite unable to disregard the problems that agitated the world about him. Calvinistic theology was in the ascendant, and Locke grew up among the English dissenters. It was not likely that any one made of milder stuff than Hobbes would be sufficiently sceptical about the soul to doubt its capacity to become the locus of mental processes. Whether we use the term soul, mind, or conscious substance makes no particular difference. "The soul" is the parent concept of all such notions. The history of British philosophy shows an increasing emphasis upon "states" of mind, and an increasing scepticism toward the "substance" supporting them. Taking the concept of conscious substance naïvely, as did the Cartesians, states of consciousness are evidently the accidents of this type of substance, and when the substance has been criticised away, as by Hume, or given a radically different meaning, as by Leibniz, consciousness, like the independent accidents of the Mass, becomes a com-

plete and finished metaphysical instrument. The separation accomplished, physiological arguments serve to justify it; they may even have made the separation easier; but without the conception of a soul and its states, a mind with its ideas and impressions, it is hard to see how such a notion as consciousness could ever have been born.

The soul: whence came such a singular idea as that of this immaterial, immortal, cognitive entity? It was natural for Christian metaphysics to lay great stress on the individual subject of salvation. It was natural for the soul, whose precarious state was the justification of the church, to take a prominent place in the dogmatics of Augustine. But there is nothing like a controversy to call forth the full measure of ingenuity and eloquence in defence of such an idea, and the current emanation theories, particularly as defended by the Manichæans, had implications which so valiant a churchman could not tolerate.

If we assume the agency of a literary tradition, the presumption is that the soul doctrine came to Augustine from Plato. There is rather much in Plato about the soul. It seemed to him extremely important to prove its immortality, but Plato knows no problem as to the existence of the soul. That is never questioned. This perplexing thing, the seat of personality, imprisoned for the time being in the body and contaminated by it, the source of motion, the principle of life, — one

would like to know where Plato got such a curious idea. Nearly all primitive races might, no doubt, have provided him with something of the sort. Actually, however, the idea appears to have been the chief concern of the contemporary mystery organizations, in which the conception of the soul was made to do very much the same kind of service it did for Plato; and its injection into philosophy may well have a good deal to do with its usefulness for the purposes of the Orphic cults.

The question of the origin of the soul-idea is a problem in the study of primitive culture. The experience of dreams, the mysteries of birth and death, customs of totemism, the imitative magic of harvest rites, in such phenomena must the notion of soul have originated. Or, if we regard the Orphic mysteries as the beginning of that tradition which has dominated the history of philosophy even down to the present day, then the concept of consciousness, or its parent concept, the soul, may yet be traced, perhaps confidently, to the blood of the bull Dionysos.

But whether the line of tradition from primitive beliefs to the metaphysics of the seventeenth century was the one here suggested, or whether the connection was through other channels, makes no difference to the main thesis of this paper. Historically, the concept of consciousness was evolved by cutting conscious substance away from its own accidents. The notion of such a substance derives

ultimately from primitive culture. These considerations may be philosophically irrelevant, but they ought to interest that small though growing number of students who believe that history should be history even though it be the history of philosophy. If the Renaissance could have run its course unconfused by the *odium theologicum*, the rediscovery of nature and man might have brought philosophy down from heaven to earth, to find there her natural occupation. But this was not to be. There was the Reformation and the Council of Trent and the Thirty Years' War; Calvin, Port Royal, Malebranche, and Leibniz. Was it not inevitable that, not nature and man as humanly experienced, but the soul, the world and the deity as metaphysically conceived, should be the theme of "modern" philosophy? Why be surprised that the metaphysics based on the concept of consciousness seems to have more to do with some other world than with this one? It is the pride of idealism that instead of guiding the work of actual knowledge, instead of throwing helpful light on the technique of discovery, this type of philosophy has, in the main, issued in religious metaphysics. Nevertheless, the initiators of modern philosophy were surely seeking something very different, and from their point of view this failure to escape from theological reminiscence must appear as fundamental failure.

It has been my purpose to ask why this is so, and to suggest the lines along which an intelligible

answer could be attempted. The recent metaphysics which has sought to guarantee a "spiritual" conception of things has been erected on the foundation of an animistic survival from primitive culture. That philosophers themselves have shown for the most part little interest in such historical connections is readily understood. Not many years have elapsed since most of the competent thinkers in the field of metaphysics defended one form or another of idealism, and a certain complacent assurance of being at least on the right track made most of them indisposed to regard their "truth" as an historical episode; while one effect of the theory of evolution has been the disposition to assume that the most significant thing about the past is that it was a preparation for the present. And as for the present, it seems inevitably human to regard it, not as history, but as a specimen of eternity.

When Professor James asked his epoch-making question "Does consciousness exist?" he let in the kind of light that is often more salutary than welcome. Not less emancipating was his declared belief that consciousness is "the faint rumor left behind by the disappearing 'soul' upon the air of philosophy."

CONSCIOUSNESS A FORM OF ENERGY

CONSCIOUSNESS A FORM OF ENERGY

BY WM. PEPPERRELL MONTAGUE

THE most perplexing and perhaps the most central of philosophical problems is the problem of the nature of consciousness and the manner of its relation to the world which it reveals, but in which it also abides. A physical influence of some sort, a fact accessible to the external perception of more than one observer, is propagated along a nerve fibre, and at a certain period in its progress there occurs a fact of an entirely different nature, to wit, a psychical fact which is accessible to the internal perception of only one observer. Nature in her transmutations of energy affords many instances of disparateness between the antecedent and consequent stages of a process, but in none of them is the consequent a member of a different order of being from that of the antecedent. Between the consciousness of an object or of a quality and the neural process which antecedes and perhaps accompanies that consciousness there is a difference far transcending all differences of quality, magnitude, time, and place with which physics is conversant. The system of physical objects seems to be a closed

system, complete in itself, in which no room can be found for the individual's consciousness of those objects. And yet the consciousness of objects is an undeniable consequence of certain processes in those objects. Now it is at once the aim and the duty of science to reveal everywhere the hidden continuity that must underlie the most seemingly discontinuous of changes. And the greatness of the change from stimulus to sensation may in nowise excuse a neglect of the puzzle presented therein.

The clear-thinking Cartesians were the first to realize the crucial nature of the psychophysical problem, and the first to make a sustained and serious attempt at its solution. They failed; and those who came after inherited from them not their fine passion for the problem itself but only that false antithesis of consciousness and extension which had made failure inevitable. Since then there have been several attempts to explain away the problem by means of a general idealistic metaphysic, or to restate it in such a way that the difference between physical and psychical should appear as a purely functional or methodological distinction. But for the most part both science and philosophy have resigned themselves to the acceptance of an inexplicable concomitance or "parallelism" between the physical and psychical series of events, a working hypothesis that is relatively independent of ultimate theories concerning the primacy of one

or the other of these series. Quite recently, however, there has grown up both here and abroad a new interest in the nature of consciousness and a new kind of protest against the epistemology of idealism. These current attempts to revive realism by combining with it a direct or presentative theory of knowledge (the "new realism"), and correlative to define consciousness as a relation between objects rather than a substance in which they inhere, promise much of interest and value. But I believe that they will fall short of their own ideal, should they persist in separating the problem of the nature of consciousness from the problem of its genesis. A definition of consciousness either as a relation of implicativeness which under certain conditions subsists between objects (Woodbridge), or as a diaphanous medium through which on occasion objects are united (G. E. Moore), seems to me to require supplementation. For such definitions, however apt in their estimates of the properties of a psychosis as revealed in introspection, are not designed to throw light upon the physical and physiological conditions of its origin. Nor can the psychophysical problem which so perplexed the Cartesians be brusquely dismissed as a question pertaining exclusively to the mechanism of consciousness. If evolution has taught us anything in scientific method, it has taught us that a sound definition will throw light on the genesis of that which is defined. Now it is

by no accident that the mind has a body; and the fact that sensations follow upon stimuli is not irrelevant to the nature of sensations. The problem of the nature of consciousness is, in short, irremediably involved in the problem of its mechanism, and the latter problem is dual, including as it does the question of how conscious elements are related to neural currents, and the broader question of the relation of consciousness as a whole to the living organism, without which as a matrix the mind could neither begin nor, so far as we yet know, continue to exist.

In the following investigation of the nature of the psychical, I propose to examine consciousness (1) from the standpoint of introspection; (2) from the external standpoint of its relation to stimuli. Lack of space precludes consideration of the third and still larger problem which concerns the relation of consciousness to the general life-process of the individual.

I

Consciousness from within: Psychosis and Hylosis

When we examine introspectively (or retrospectively) a direct perceptual experience, it appears to contain (1) elements which, while they momentarily belong to our experience, seem in no sense to be its peculiar property. We regard these ele-

ments as mere sojourners and transients in our consciousness, entering or leaving it at pleasure, belonging at the same time to other experiences than ours and capable of existing in their own right apart from any of these experiences. Such objects are the chairs, stones, stars, animals, etc., that we call physical. We find (2) a quite different set of elements, such as feelings, desires, volitions, etc., which seem to stand in no such loose and dissoluble relations to our experience. We can conceive of them neither as parts of another experience nor as capable of subsisting in their own right apart from any experience or consciousness of them. These elements are called psychical. We find (3) a certain relational form or structure applicable to the experience as a whole, and also to the psychical parts of it, but not applicable to the first named or physical elements. The physical elements are then distinguished from the psychical not only by their capacity to exist in many experiences or in none, but also by their possessing a form or structure that is in some respects the antithesis of the psychical structure, which latter is also the structure of the experience as a whole; and it is in their contrast of structure rather than in their contrast of content that the most promising basis for a clear distinction between physical and psychical is to be found.

The problem of further defining the psychical is indeed complicated at the outset by the consider-

ation that while the physical is capable of becoming a part of the psychical system, from which it is to be distinguished, yet from another point of view the physical world may be regarded as itself containing the totality of the very experiences which reveal and contain it. We might compare the situation to a lake in which there were a number of whirlpools, through each one of which all the water flowed or could flow. The water (physical objects) could then be said to be contained in the whirlpools (consciousnesses), while at the same time the whirlpools themselves would be in their turn contained in the water of the lake. Let us seek to formulate the differences in structure of these two curiously interpenetrating systems.

The physical world and every portion of that world is a system in which the plurality of the elements is primary and the unity of the system is secondary. Every material object is conceived as being susceptible of indefinite division and subdivision into parts. Whatever is physical is essentially plural; such unity as pertains to it is factitious or external. This essential divisibility or compositeness of material objects is the real justification for formulating their behavior in terms of atomistic and mechanistic analysis. We never rest satisfied with the view of one object influencing another by means of its nature or quality, for we know that that nature or quality is dependent

upon the parts of the thing and upon their relations. And the reduction of quality to quantity in the physical world rests on the fact that qualities act only vicariously; never in their own right but always as the correlates of spatio-temporal relations. The static aspect of this truth is evidenced in our appreciation of the impossibility of a quality or universal having physical existence apart from matter. It must inhere in the latter as its state or accident. In the material world a thing must be before it can be somewhat.

Let us turn now to a consideration of the structure of a psychosis, by which term is meant an individual's consciousness-of-objects or total experience at any given moment. Like a material system (which for convenience we may name a "hylosis"), every psychosis possesses both unity and variety. But the plurality of elements in a psychical system is always secondary and subordinate to its unity as a whole. My experience of ten inches is by no means composed of ten one-inch experiences. I cannot possibly imagine that experience divided up into separable parts. And as in the material system we found the compositeness of the whole reflected in the compositeness of each of its parts, so in the psychosis we find the unity and indivisibility of the whole repeated in the similar unity and indivisibility of each psychical element. My consciousness of the room, for example, includes my consciousness of the table. The con-

consciousness of the table includes the consciousness of the table's legs. But it would be as impossible to separate my consciousness of the table-legs from the consciousness of the other parts of the table, as to separate my consciousness of the table from my consciousness of the room. Unity or indivisibility is as fundamental a property of the experiencing manifold as plurality or divisibility is of the experienced manifold. We must not interpret this to mean that the physical world lacks quality and unity or that the psychical lacks quantity and plurality. Each order contains as much of both quantity and quality as does the other; only in the physical world it is the qualities that are secondary and factitious while in the psychical the reverse is true. But let us see to what extent this abstract formulation of the differentia of the psychical can serve to explain certain of its other and more familiar properties.

The first of these subsidiary characteristics to which I would call attention is the psychical status of class-concepts, universals or attributes in their relation to the particular things in which they inhere. It often happens in my own experience, and I presume in that of others, that the quality of a sensation is perceived before the local sign or particular place to which that quality will be referred. A sound or even a color is appreciated as such and only later is it viewed as an attribute *inhering* along with other attributes in a particular object. And

as, in direct experience, the only meaning we can give to a "thing" in distinction from its "states" is the definite position in the spatio-temporal system in which those states or qualities are exemplified, I interpret this felt priority of a quality to its local sign as justifying in the sphere of a psychosis the Platonic contention of the primacy of *class-forms* or natures to the *class-members* which embody them. And if this primacy be questioned in the case of sense experience, I feel sure it will be accepted as holding true of the more conceptual phases of our mental life. We have to know the meaning of a general term before we can apply it to particular objects. The members of a class are, for thought, primarily only the more or less accidental embodiments of a certain nature or meaning. And this latter may be analyzed and discussed in complete disregard of whether or not it happens to be actualized here, there, or anywhere. Professor Woodworth's discovery of the imageless or non-sensorial elements of many clearly defined topics of thought and plans of action gives striking emphasis to the truth in question; though even without appeal to these non-sensory elements it seems to me, as I have said, easy to imagine a specific nature without also imagining it as existing at a particular place, *i. e.*, as a particular object. I can certainly think of making a journey to San Francisco without considering whether I shall go by way of Chicago or by way of St. Louis, this week or next week or

never. What the British nominalists thought they had proved was the impossibility of conceiving universals or abstractions. What they really did prove was the impossibility of conceiving universals or abstractions *as particular physical objects*. The same innocent and irrelevant truism had been triumphantly established, some centuries before, by Aristotle against Plato in the *τρίτος ἄνθρωπος*. In a psychical system the universal is primary and the particular secondary for the same reason that in a physical system the reverse is true — that reason being that the quantity and plurality of a physical system underlie its quality and unity, while in the psychical system it is the unity and quality that are fundamental. That the mind is the place of forms is one of the well-known criteria for distinguishing it from matter, and is directly deducible from the differentia that we have adopted.

A second and even more familiar characteristic of the psychosis is its capacity for past and future events, for memory images, and for ideals. In the physical world the present *is* real; the past was and the future will be real, but only the present is. It is then a distinguishing feature of the psychical that in each present moment of its flow the past not only was but *is* present — as remembered, and the future not only will be but *is* present — as imagined. We might put it this way: at or in each moment of physical time only that one moment is present, while within the unity of

each moment of psychical time, many other moments both past and future are present. This curious capacity of the psychical to *extend in time*, although it has been made the basis for the timeless egos of subjective idealism, is in no wise incompatible with the mind's presence in time. It is this extra dimension which more than any one thing gives to the conscious being his supreme advantage in competing with beings not conscious, enabling him, as it does, to respond to the impulse of the moment in the light of past knowledge and future needs. And yet this temporal unity of specious past and future in each actual present is but another aspect of the unity of my perception of one part of the spatial field with my perception of the other parts of that field.

A third of these subsidiary marks of the psychical, and one closely consequent upon the last, is the purposive or teleological character of mental causality as contrasted with the "blind" or mechanical causality of the physical world. The goal of a conscious process is present from the beginning and takes an active part in selecting the links that lead up to its realization. This would be an impossible paradox in a purely material system, for the future as such has no physical existence except at the moment when it ceases to be future; and all causes act on the instant, *ab extra* or mechanically, the telos of the process playing no part in its own actualization. In a psychosis

the individual elements instead of being self-existent constituents of an aggregate are each of them subordinate both in their being and in their behavior to the structure or form of their system. If the tendency of the system as a whole be identical with the tendency of one of its elements, then in the ensuing process that element will have a very peculiar prominence. Though not necessarily strong in its own right it will act catalytically as a kind of centre about which the other elements will gradually be distributed. A possibility-element in a psychosis differs from a fact-element in not being able to maintain itself except by aid of other elements. When we experience a future ideal in process of gradually attaining to what we call actualization, we note its passage from a parasitic or dependent position in our psychosis to a status of self-dependence and self-existence. And when the process is voluntary we perceive the other elements contributing to this change of status in response to the demands of the system as a whole. Factuality, indeed, differs from possibility not merely as present and past differ from future, but as the fixed and must-be-admitted differ from the dismissible-at-pleasure. Facts are. They are also stubborn. Ideals are unborn things of the future; they dwell dimly in the conceptual fringe of our consciousness and clamor or plead according to their natures for us to incarnate them in its perceptual nucleus of fact. Teleological causation

is not then the mere influence of a conceived future element upon other elements of the psychosis. Self-active and self-directive, it is a movement of crystallization on the part of the psychosis as a whole towards and around one of its own members — a movement in which the factual elements are, despite their individual tendencies, made to adapt themselves to the reception into their own order of the element which, though present with them, is nevertheless future and so of a different order.

Thus, inadequately, I have attempted to depict the three traditional marks by which consciousness is contrasted with the real though passing show of its physical objects. These marks of mind were (1) its capacity for forms or universals; (2) its capacity for the non-actual things of the past and future, and (3) its capacity for self-directed and teleological causality: — psychical realism *versus* physical nominalism; psychical time-extension *versus* physical flux; psychical finality *versus* physical mechanism. I have tried further to show that these three capacities are merely three different expressions of that general character of the psychical or private aspect of experience which I accepted as the basis of its definition, viz., its essential unity and indivisibility as based upon the primacy of the structure or form of the system considered collectively as a whole over the plurality of its elements considered distributively as an aggregate. We have now to take the second step in our

problem and to investigate the process in which the events of a psychosis are consequent upon physical events in the brain.

II

Consciousness from Without: Intensive Sensation and Kinetic Stimulus

We are at the outset confronted with a certain postulate or assumption, adopted by the Cartesians and by almost all later philosophers. The assumption was as natural and excusable as it was false and mischievous; unless it can be refuted any attempt to solve the psychophysical problem must appear futile. This momentous postulate is the expression of a twofold exaggeration of that distinction between psychical and physical which has been described above. Direct experience together with profound insight into scientific method convinced Descartes that matter was fundamentally quantitative or spatial, infinitely divisible, and controlled by mechanical law, and that mind, on the other hand, was teleological, indivisible, and qualitative. In the first flush of enthusiasm over this true discovery it was falsely inferred to mean that matter was *nothing but* quantitative and that mind was *nothing but* qualitative. The result was a dual denudation of the physical and psychical orders. *All true or non-quantitative qualities, i. e., all "secondary" qualities were removed from the*

material world and dumped bodily into the mind, that mind being at the same time and from a similar motive deprived of all real extension and real presence in the physical world of its objects. And in place of two contrasting relational nexuses, exhibiting contrasting types of behavior, there ensued the extraordinary conception of two separate *realms* of events, — a physical realm pre-empting all real space and over against this a psychical realm which not being in space was nowhere at all, though of course quite “real.” The appalling dualism thus begotten speedily led all who could clearly realize its implications to abandon any conception of a causal relation between the two sundered halves of the universe. All true causality involves a transfer of influence or energy from the causal agent to the patient on which the effect is produced. But energy cannot be transferred from somewhere to nowhere, and back again from the nowhere of the mind to the space of the brain and the physical world. Such a “transfer,” if it could mean anything, would mean that energy was annihilated in sensation and created in volition. It was the recognition of this implication that led quite properly to the doctrine of the conservation of energy being invoked as an additional argument against any interaction of physical and psychical. Nothing was left but to describe the synchronous and thoroughly correlated occurrences in the two realms as a mysterious relation of “par-

allelism." And in spite of the growing demands of Darwinian biology on the one hand and of common-sense and direct experience on the other, psychophysical parallelism, which when properly interpreted means automatism or the epiphenomenality of consciousness, stands to-day as the scandalous but irrefutable consequence of postulating a material world without qualities and a world of minds that lack spatiality and exist — *nowhere*.

As I have elsewhere¹ argued in detail against this postulate, I may confine myself here to a very summary statement of what seem to me to be its several invalidities:

1. Each man feels his consciousness to pervade not only his body but the outer space in which his objects appear. This immediate revelation in experience of the spatially extended nature of consciousness is not and is not felt to be in the least incompatible with its intensive unity and indivisibility.

2. The fact that each consciousness feels itself to pervade the visible space in which its objects appear is not and is not felt to be incompatible with the equally intuitive conviction that that consciousness could never be visible or in any way accessible to the external perception of another observer. To the eye of such an external observer the space occupied by consciousness would always

¹ *The Monist*, January, 1908, "Are Mental Processes in Space?"

appear filled with the purely physical objects of matter and motion.

3. The real presence in physical objects of qualities such as are perceived in them is in no sense incompatible with the true belief that such qualities are in themselves inefficacious in the production of physical changes, that they are each of them correlated with or inherent in the spatial and purely mechanical relations of material particles, and that it is in these quantitative correlates of qualities that true explanations are to be sought.

Suppose, now, that we are freed from the paradoxical antithesis of consciousness and space, — how does the psychophysical problem present itself? A physical influence or stimulus which though not lacking quality is primarily quantitative and accessible to the external sense of many observers is transmitted along a sensory nerve and appears to give rise to a sensation or psychical state which though not lacking in quantity and spatiality is accessible to the internal perception of only one observer. *That* this happens is an obvious fact easily verifiable in any experience and not to be got rid of by any metaphysical or methodological theory whatsoever. But can we conceive *how* it happens? A clew to the answer is, I believe, to be found in a certain type of occurrence in the physical world. When an elastic body collides with a fixed barrier, the motion of the body gradually decreases to zero and then begins

to increase again in an opposite direction up to almost its original amount. At the moment prior to the rebound there is no motion in any direction; for before a reflected motion southward can begin, the incident northward motion must wholly cease. The motion in the world is not conserved in the sense of being the same in amount at every moment of existence. But energy is supposed to be conserved in just this sense. Hence, energy is of two kinds, of which visible motion is one; and it is only the sum of the two phases that is constant. The energy which is not motion but into which and from which motion passes is called potential. Naturally, the nature of this invisible type of energy is a question of some interest. There are, I understand, three theories of its nature. (1) There is the theory that it is some sort of invisible motion (other than heat) of the particles of a body into which the molar motion is transformed. This appears untenable for the reason that precisely the same problem will necessarily recur in connection with these particles, no matter how tiny they are made or how often we subdivide them. Two particles collide, lose their motions, and regain them in opposite directions. What becomes of the energy of these little motions during the moment of their redirection? (2) There is the theory that the kinetic energy of elastic bodies prior to collision passes at the moment of collision into nothing and comes out again from nothing quite fresh, and unchanged

in form or quantity. This is the view of potential energy that seems most in favor at present. According to it, potential energy is really nothing but potential. It is in no sense actual, but is just the sheer possibility of a certain quantity of motion. In favor of this conception it might be said, I suppose, that potential energy is not and from its very nature cannot be perceptible to external observers; that it is consequently not actual in any intelligible sense. And again, that to consider it as actual would be, if not absurd, at least useless, for it is only measurable indirectly, in terms of the motion of which it is the promise. (3) There is finally the older view that potential energy is stress or force; that as such it is just as actual as the motion from which it has come, and into which it will pass; that it is "potential" only with respect to motion, and that motion might with equal propriety be called potential energy of stress. In favor of this third view it might be said: I. That it has never been empirically refuted, is still held by some physicists and has in the past been held by men of the insight of Faraday. II. That potential energy, though not visible or externally perceptible, is nevertheless definitely and directly perceivable internally or by *participation* in it through what is inaptly called the "muscular sense"; and that it is absurd to speak of the stress quality revealed by this internal or muscular sense as being less real or more anthropomorphic than

the motion quality revealed by the visual sense. III. That energy in the form of stress, while most easily measurable in terms of the motion which it will yield is nevertheless capable of as precise mathematical formulation as that motion itself, viz., as $m \cdot a \cdot s$, or the product of the *mass*, the *acceleration* and the *space* through which that acceleration obtains. In short, the third view, according to which force is a real phase of energy, is, *first*, logically necessary in order to avoid the unthinkable paradox of a real motion passing into and issuing from nonentity; it is, *second*, a direct revelation of experience; it is, *third*, capable in its own right of mathematical symbolization.

When we formulate kinetic or motion energy as $\frac{1}{2} m \cdot v^2$, we recognize it to be the product of the mass and the integral (with respect to velocity) of the velocity. In the same way potential energy formulated as $m \cdot a \cdot s$ may be recognized as the derivative (with respect to time) of the velocity. Acceleration is the derivative of the same function of which $\frac{1}{2} v^2$ is the integral, viz., the function

$$v = \frac{ds^1}{dt}.$$

¹ Of course equal quantities of the potential energy denoted by $m \cdot a \cdot s$ may differ in kind according to the relative values of the three factors, (m) (a) and (s). And leaving aside variations in the mass factor, we should have two types of potential energy; one would be of the type instanced by a system of widely separated bodies attracting one another by the force of gravity, and the other of the type presented by a compressed spring. In the former type a relatively small acceleration, (a), extends through a relatively great space, (s), while in the latter a relatively great acceleration (a) acts through the relatively small space (s) occupied by the spring; the product ($a \cdot s$), however, being the same in both cases.

If one place his hand between a fixed spring and a body moving uniformly into collision with it, he can get as clear and direct a perception of this continuous transfer of motion into a stress which is felt to be homogeneous though not identical with it, as he can of any other phenomenon whatever. And the mathematical homogeneity of $\frac{1}{2} m \cdot v^2$ and $m \cdot a \cdot s$ accords with this immediately felt homogeneity of motion and stress. What is the *a priori* warrant for believing that reality can contain only integrals of velocities and not their derivatives? Of course stress from its very nature can never be revealed to the visual sense, while motion can. But is it not an over-enthusiasm for the instrumental excellence of the retina to regard it as having a monopoly in revealing the qualities of the actual? To be consistent in carrying out this apotheosis of the retinal and condemnation of the muscular sense, we should have to define the inertia and the gravitational property of mass itself in terms of the motion with which they can undoubtedly be correlated. But I cannot see how such a reduction of mechanics to a geometry of the motion of shadows or visible forms would possess any exclusive ontological validity, even if Professor Karl Pearson be right as to its superior methodological elegance.¹ Let us assume, then, that potential energy or stress is as real as kinetic energy and that

¹ Cf. "The Grammar of Science," especially chapters VI and VIII, in which the reality of force is attacked as an exploded superstition and even mass is defined exclusively in terms of motion.

consequently we should speak of an *intensive* rather than of a potential phase of energy. I wish now to point out certain very curious resemblances between this intensive energy and that which from the point of view of introspection we defined as the psychical.

The first and perhaps the most striking of these resemblances is the essential invisibility or privacy which characterizes both energy in its intensive phase and also the non-physical elements of consciousness. Leibniz reminds us that the most powerful microscope could not, if applied to the brain of a fellow-man, disclose anything of his thoughts and feelings. We may remind ourselves that the most powerful microscope, if applied to a compressed spring or to the space of a magnetic or of a gravitational field, would be equally unable to disclose the stresses therein. As objects of external or visual perception, potential energy and the psychical are *both* of them non-existent. We can feel stress only by participating in it, just as we could feel our neighbor's toothache only by participating in it through some such inter-organic, nerve-grafting device as Professor Pearson has suggested. From the external point of view, potential energy and my neighbor's toothache are *ejects* which I must postulate in order to explain the otherwise inexplicable hiatuses in the series of visual perceptions which originate from and terminate in them.

Secondly, both consciousness and intensive en-

ergy seem to pervade the space of the things they influence, and in this both resemble matter. But in thus extending in space they each of them seem to forfeit thereby no whit of their peculiar unity and indivisibility, and in this both of them differ from matter. You cannot imagine your consciousness, although it pervades the space of its perceptual objects, being divided into pieces or composed of them. No more can you imagine dividing into separate pieces the elastic stress that pervades a spring or the gravitational stress that pervades the planetary system.

Thirdly, we pointed out in the first section of this paper, how, from the essential primacy of unity over divisibility in a psychical system, there followed that curious conformity in the behavior of its elements to the structural form of the system as a whole which was manifested in the *teleological* nature of psychical processes. Now, consider the behavior of a swarm of moving iron filings when they come within the field of a magnet. Prior to their advent in the field, each is in its existence relatively autonomous as respects the others, though subservient to the impulses received in actual impact with them (mechanism). Once within the magnetic field, however, the filings forget, as it were, their individual strifes, and each in relative indifference to the bumps of its fellows assumes the position demanded of it by the structure of the field into which it has come. The formless chaos

of filings gives place to the ordered system which so surprisingly incarnates, or bodies forth to the eye, the invisible and indivisible lines of magnetic stress.

Fourthly, *the conditions under which a stimulus is followed by a sensation happen also to be conditions under which energy passes from a kinetic into an intensive phase.* Perceptions are presumed to arise synchronously with the redirection in the central nervous system of afferent currents into efferent channels. When this process of redirection is prolonged by reason of the many conflicts with the cerebral association currents induced by the afferent intruders, then the consciousness is prolonged, keen, and complex. When, on the other hand, by reason either of innate adjustments or of long practice, the journey through the central labyrinth is quick, smooth, and direct; then the consciousness, if present at all, is simple, faint, and brief. Note that the condition for motion passing into stress is always that it meet with some obstacle by which it is redirected, and that the proportion of the energy that becomes potential depend on the degree of change in the motion's direction. If a ball be thrown perpendicularly against a wall, the whole of the incident motion must disappear before the reflected motion can ensue. But if it be thrown obliquely then only so much of the motion can pass into stress as is equal to that imaginary component of the motion, which is normal to the wall. Several observers might conceivably follow with

their eyes the nerve current as it traversed the circuit from sensory origin to motor terminus, and at the very moments when the whole or some part of its kinetic energy did, by reason of a change in its direction due to the interference of rival currents of cerebral origin, disappear into an intensive or potential phase: — at those same moments there would be *reported* a psychical fact accessible only to the observation of the one person through whose brain the stimulus was passing.

“When a thing looks like a frog and acts like a frog and croaks like a frog, we call it a frog.” And on the strength of the four fundamental resemblances described above I propose as a possible solution of the psychophysical problem the following theory: *What I, from within, would call my sensations are neither more nor less than what you, from without, would describe as the forms of potential energy to which the kinetic energies of neural stimuli would necessarily give rise in passing through my brain.*

We do not as yet know enough about the nature of the neural stimulus or “current” to form a satisfactory conception of the manner of its transformation into the potential phase. If it be some form of vibration or ordinary wave motion, then the change is of the same sort as that undergone by a beam of light in changing from the incident to the reflected path. If on the other hand the nerve “current” be electrical in its nature, resembling,

as has recently been suggested, the relatively slow progress of energy along a telegraphic cable, then its transformation into potential energy might perhaps be likened to that wrought by an electromagnet in which a portion of the energy of the electric current is drained off into the potential form of a magnetic stress in the surrounding field.

I hasten, however, to answer an objection which is obvious and which might appear crushing. We know, it may be said, what force is — at least if we choose, as I have done, to give that name to the quality revealed by the muscular sense. And we know what a sensation in general is. They are plainly different, and to identify one with the other is sheer silliness. It is like saying with the materialist that a sensation is a mode of motion. To identify odor with color, or pain with sound, would be futilities of the same kind.

To this objection two answers may be made. First, it will be remembered that when we abandoned the modern dualistic postulate of a non-spatial consciousness, we abandoned also its equally vicious correlate — the postulate of an abstract physical world made up of mere quantitative relations and lacking all the specific natures or secondary qualities that are correlated with those relations. Now, if we return to the older view of common-sense, according to which every physical thing and every motion or stimulus proceeding from it has correlated with it a specific

nature — not a substantial form but rather a form inhering in the motion that carries it — then the change of the kinetic energy of the stimulus into the potential energy of the sensation will not be a mysterious change of sheer quantity into sheer quality, but only the change into a qualitative form of stress of a similarly qualitative form of motion. So what we perceive as mere undifferentiated stress is simply the general “substance” of sensations, *i. e.*, the basic and generic quality common to them all, the different degrees of which are felt as the differences of intensity to which every sensation is alike susceptible. Stress as psychical substance would thus be related to particular sensations precisely as extended matter is related to particular objects. All physical objects are experienced as having the general quality of materiality in addition to the specific qualities by which they differ.

But, secondly, it may also be said in explanation of the difference between mere stress and the rich variety of our feelings and sensations that what we have so far been considering as potential energy and formulating as *m · a · s* is only one, and that the simplest and lowest of the intensive phases into which kinetic energy may pass and from which it may come. Acceleration is only the first derivative of velocity with respect to time; and if an energy quantum can pass from the extensive phase represented by the integral of a velocity ($\frac{1}{2} v^2$)

into the intensive phase represented by its first derivative $\left(\frac{dv}{dt}\right)$, it would seem that it might on occasion pass equally well into any or all of the infinity of higher phases of intensive energy symbolized by the series of velocity derivatives of higher order than the first, viz.,

$$\left(\frac{d^2v}{dt^2}, \quad \frac{d^3v}{dt^3}, \quad \frac{d^4v}{dt^4} \quad \cdot \cdot \cdot \quad \frac{d^nv}{dt^n} \quad \cdot \cdot \cdot \right)$$

The qualities denoted by these higher derivatives would have no place or meaning in the physical world except as higher orders of the potentiality of motion, but they could well exist as actualities in the intensive sphere of the psychical. They would constitute those tertiary contents of consciousness which even the most realistic of realists can hardly imagine to exist apart from some awareness of them. I refer to such things as love, envy, fear, and hate, and the whole inexhaustible host of the finer forms and nuances of these.

And here, then, in the answer to what might have seemed a fatal objection, we find a *fifth* fundamental resemblance between the psychical and the intensive phase of energy with which our theory seeks to identify it. Any given psychosis contains only a tiny fraction of the totality of physical events, but the psychical in general has the capacity not only for all perceptible physical objects but also for the whole assemblage of thoughts and

feelings about those objects. This consideration alone would be sufficient to disprove a parallelism of the "double-aspect" type. For the assemblage of possible psychical elements or forms of intensive energy denoted by the higher derivatives is to the assemblage of possible physical events or kinetic energies denoted merely by the first order of integrals as a multi-dimensional manifold is to the uni-dimensional manifold that forms the lowest and limiting of its "cross-sections." Or to express the same thing in another way, we can say that the physical world of public objects is the indefinitely extending and ever-present surface of contact from which originate and in which terminate the series of intensive or psychical events, these latter being private and insulated from one another except in so far as they participate in the common physical order. Or, finally, we might liken the relation between physical and psychical to that obtaining between the one kind of wealth embodied in money, and the totality of objects of wealth which are being constantly interchanged and mutually evaluated through the agency of that money as a universal medium of circulation.

We found at the outset of this investigation that the problem of defining consciousness would properly involve the solution of three subsidiary problems: (1) The definition of the psychical as it appears to introspection or from within, a distinction between psychosis and hylosis as directly

presented in the experience of each of us. (2) The definition of consciousness as it appears or is inferred from without, as centering in the brain of another man and constituting the essentially invisible origin and terminus of his nerve currents; the consideration of which is the psychophysical problem of the relation of stimulus to sensation. (3) A comparison of the properties of psychical systems with the properties of living systems that would throw light on the bio-psychical problem of why it is that consciousness must have as its matrix a growing and reproducing organism of protoplasmic matter.

I have endeavored in the first and second sections to present a conception of consciousness as energy that seemed to me to meet the demands of the first two of the three problems just named. The third problem must be omitted, though its consideration, would, I hope, serve to supplement and in some measure to clarify and concretely corroborate what has here been said.

PERCEPTION AND EPISTEMOLOGY

PERCEPTION AND EPISTEMOLOGY

BY FREDERICK J. E. WOODBRIDGE

“**W**HAT perception is,” says John Locke, “every one will know better by reflecting on what he does himself, when he sees, hears, feels, etc., or thinks, than by any discourse of mine. Whoever reflects on what passes in his own mind cannot miss it. And if he does not reflect, all the words in the world cannot make him have any notion of it. This is certain, that whatever alterations are made in the body, if they reach not the mind; whatever impressions are made on the outward parts, if they are not taken notice of within, there is no perception. Fire may burn our bodies with no other effect than it does a billet, unless the motion be continued to the brain, and there the sense of heat, or idea of pain, be produced in the mind; wherein consists actual perception.”¹

Psychologists since Locke have often thought of perception more narrowly, but his words still serve to point out the different attitudes towards the fact that to know our world we must perceive and reflect upon it, which have been conspicuous in mod-

¹ “Essay concerning Human Understanding,” edited by A. C. Fraser, Vol. I, p. 183.

ern inquiries into the subject. They suggest that perception is a process which we may examine by considering what we do when we see or hear, and that it is a content, a result, which we may, consequently, consider as such, and about the nature and relations of which we may inquire. It is with these two attitudes towards perception that this paper is primarily concerned, so far as the problem of knowledge is affected by them.

I

Inquiry into what we do when we see involves us naturally in researches into those physical and physiological processes which Democritus seems to have been the first to formulate with any great amount of completeness. We are led to recognize sources of stimulation, media for the transmission of the stimulus, organs for its reception, and reactions of the individual possessing the organs. In a particular case, as in that of seeing, we try to isolate a particular process and discover how it is related to other similar processes. In short, we inquire into the mechanism of perception. We deal with factors, processes, and quantities supposed to be known or ascertainable. Stimulus, medium, and organ, for instance, are distinguished as identifiable factors in one continuous sphere of investigation. Any doubt about their existence, their character, or their mode of operation tends

to vitiate and obscure our understanding of the mechanism we are trying to discover. Further, our procedure is not speculative, but experimental. So far as possible we measure the stimulus, the rate of its transmission, and its effect. We do what can be repeated by others, because to others our method is intelligible and the means of repetition are at their command. Should we engage in mere suppositions, admit that the stimulus, for instance, were not something given with which we can experiment, but something assumed to account for certain facts, our laboratories might well be closed, and the mechanism of perception left for anyone to conceive according to his preferences or whims. But it is precisely such admissions which we do not make. We may admit that other points of view may lead to a revision of the ultimate significance of our results, but we never willingly admit that the method and the factors of our investigation are not intelligible, clear, and unambiguous.

Still further, we are quite unwilling to set any arbitrary limit to the extent to which inquiries of this nature may be successfully pursued. Whatever limits we discover we set down to our ignorance, to our lack of appropriate instruments, to our failures, but not to any restraints due to the method we employ or to the nature of the factors with which we deal. We may characterize certain results of perception as illusions, but such a char-

acterization does not deter us from inquiring into their mechanism in precisely the same way as we inquire into the mechanism of those results we call normal or real. We may even ask, as Locke suggests, what we do when we think, and admit that the only bar to our discovery of the mechanism of thought is a temporary ignorance which at any moment may be removed. In general, then, perception as a process defined broadly in terms of Locke's general definition of it is a process open to experimental inquiry in an intelligible and unambiguous manner, an inquiry which can be repeated, checked, and verified by anyone who takes the pains to do so. The result is a concrete body of knowledge steadily increasing in extent and definiteness, and gradually accumulating solid information about the world in which we live. No one naturally fails to grasp its aim, its method, or its import. No one finds confusion in it unless he departs from the point of view from which it is instituted and proceeds to estimate it according to standards and criteria other than those which are employed in building it up.

Similar observations may be made about the results reached when we take the other attitude towards perception; when, that is, we regard it as a content or product. Naturally we are now no longer concerned with the process or mechanism by which the content is attained, but solely with the facts which are the outcome of that process.

When we see, certain things are done, but something also is seen. That which we see we now call *a* perception, and in general we may use the term "perceptions" to denote whatever may be the objects of our regard. Now these perceptions we may enumerate. We may classify them. We may analyze them into such elements as we may be able to discover. We may find out how these elements are related to one another, how they may be combined, how they modify one another. About the combinations we may make similar inquiries. In short, we may institute a wide range of investigations into the things we perceive without departing from the point of view which takes these things simply as the objects of our regard, and without asking how we perceive them. Such inquiries may be as free from speculation and mere assumptions as those we make into the mechanism of perception as a process. They may be equally as experimental. They may be kept true to their point of departure and yield concrete bodies of knowledge of great value. The results attained are accessible to anyone who cares to review them. The methods and experiments by which they are attained can be repeated, they can be checked and verified at any point desired. We find no ambiguity or confusion in the knowledge they afford us so long as we do not depart from the point of view from which these particular inquiries are instituted.

When we speak of those bodies of knowledge which result when we regard perception solely as a content or product, we are apt to think primarily of analytic and descriptive psychology. But it is clear that they may not be so restricted. They comprise, in fact, by far the greater part of what we know. The astronomer, the biologist, the chemist, the historian, the student of literature — to mention only a few instances — are all engaged in increasing our knowledge of what our perceptions are and how they are related to one another. Their studies are not prefaced by an examination of how we perceive. They take their material as so much given stuff, and then proceed to tell us what, when so taken, they discover it to be. If they are invited first to examine the mechanism of perception, they regard the invitation as impertinent and irrelevant. They have found such an examination to be unnecessary, and so believe that they can rightfully neglect it. Even when their attention is called to the fact that the processes by which we perceive have important bearings on what we perceive, they find that their observations can be controlled by well-known methods, by putting them, for instance, in the context which theories of probability, based on a number of observations, afford. They can thus make their observations approach any degree of theoretical accuracy desired.

We should, doubtless, count among the bodies

of knowledge which result when perception is regarded as a product, more than history and the greater part of natural science. For, naturally, we may make these bodies of knowledge themselves objects of investigation, asking after their general constitution, the manner of their building up, and the grounds which lead us to view them with confidence. These are problems with which logic is concerned. How far they constitute the full extent and nature of logical theory may be left for the present purpose undecided. But it is clear that a logic which would deal with them successfully would be a very comprehensive science. When we should know how different bodies of knowledge differ, how far these differences are due to material, to method, and to aim, when we should know how these bodies of knowledge are built up from what we perceive, and with what degree of confidence they may be entertained, we should then have largely satisfied the demands which our interest in logic occasions. Such a logic, like the bodies of knowledge it reviewed, would be experimental, it would itself be capable of review by anyone interested without involving the reviewer in ambiguous assumptions. It would simply say to him, Such and such is the case with these bodies of knowledge; examine them for yourself and you will find it so or be able to indicate where inaccuracy exists. It is quite inconceivable that such a logic could afford matter for debate rather than

for investigation. It would hardly be called by the names of those who worked at it, or be the possession of a "school" or a "philosophy." It would constitute a body of common knowledge which investigators could enlarge and thereby enlarge their own reputations. In proportion as it kept clear its title to common knowledge, admitting review and repetition of experiments at all points, it would be free from ambiguity and confusion.

It seems clear, further, that the point of view under consideration could yield a metaphysics which, like history, the sciences, and logic, could claim to be experimental and constitute a body of common knowledge. For it may well be that the things which we perceive, when taken in as comprehensive totals as we can grasp, present certain general features of character and connection which we tend to disregard or overlook when the same things are taken less comprehensively and completely. Such characters and connections have been historical themes of metaphysics. When looked for in the world of concrete perceptions they may not constitute all that historical metaphysics has been pleased to investigate, but the experimental restriction cannot obscure the magnitude or importance of the body of knowledge which might result. For, most assuredly, if there are general types of existence among the things we perceive and general types of connection, the clear definition of their characters and modes of opera-

tion could not fail to be of importance, or to afford problems of ceaseless and varied interest. A metaphysics of the kind suggested would admit of natural growth from generation to generation, because it would be knowledge of the kind that pursues a common road and that can be repeatedly checked and reviewed.

Bodies of knowledge of the kind described by no means constitute the sole results of our inquiries. We seek to supplement them by hypotheses, theories, and philosophical speculations, but we find our vision of the world grows clearer thereby only as these supplementations are genuinely such. The moment they lead us to deprive the results of careful research of their natural character and purport, these results become ambiguous and misleading. We no longer remain clear as to the information they intend to convey. When, for example, Huxley tells us that "a sensation is the equivalent in terms of consciousness for a mode of motion of the matter of the sensorium," and that the assumption of the existence of matter is a "pure piece of metaphysical speculation,"¹ our thoughts on the subject of sensation become confused instead of clear. It seems unjust to his careful investigation to conclude that a sensation is a certain kind of equivalent for something the existence of which is a pure piece of metaphysical speculation. Indeed, if such is to be the

¹ "Hume : with Helps to the Study of Berkeley." New York : D. Appleton & Co., p. 317.

outcome of our study of sensation, that study is hardly worth while. It does not clarify the thing it intends to clarify. It obscures it and makes it unintelligible. Thus it is that speculation only confuses experimental knowledge when, by depriving our results of their evident import, it fails genuinely to enlarge or supplement them in the direction in which they naturally point.

Again, it is only by being such genuine enlargements or supplementations that speculation can be controlled and preserved from mere idiosyncrasy. As pragmatism has now abundantly taught us, with fresh insistence on a piece of wisdom long familiar, speculations which can own no checks or make no differences in the world with which we directly deal are matters which it is idle to seek to verify. We may accept them, not because they give us information about our world continuous and homogeneous with what we naturally acquire, but because of their inherent interest or their consonance with our moods.

Whether, therefore, we regard perception as a process the mechanism of which we are to discover, or as a product comprising the realm of what we perceive, it is evident that we may sketch out extensive bodies of knowledge consistently and unambiguously pursued from these two points of view. Even if the points of view differ, the resulting bodies of knowledge are of the same general character. They are what I have called experimental.

And by that I have meant that the elements, the terms, the relations, the connections, the qualities, the quantities — or whatever terms we may choose by which to designate the various things we study — can all be identified by anyone who wishes to identify them, and that whatever is said about these things can be tested by anyone who will refer to the things in question. The bodies of knowledge are not mere possibilities which we may some day realize, but they are actual bodies of knowledge already existing in various stages of progress. What I would particularly emphasize about them is their experimental character and the fact that they are accepted by the vast majority of people at their face value, as measurably accomplishing the thing they set out to do.

That they are so accepted will, probably, be generally admitted. When we are told that under specified conditions objects excite certain disturbances in the medium between them and our eyes, and that our eyes are affected by these disturbances in various ways, that retina and nerve are thereby stimulated, and that consequently we see, we tend to believe what we are told. When we are told that the medium is the ether, we may have difficulty in comprehending just what the ether is, but we tend to believe that there is such a thing or something like it which we might understand better with increased knowledge. We tend to believe these things just as we tend to believe the

historian when he tells us that the Pilgrims landed in 1620 A. D. Indeed, we naturally regard statements about the ether, about the processes and results of perception, and statements about the Pilgrims, as statements of the same general kind purporting to inform us about the conditions and happenings in the world in which we live. Similarly, we incline to accept the statements of the sciences for just what they purport to be: that there is such a substance as oxygen and that it combines with other substances in certain ways; that these substances may be atomic in structure or of a structure more complex; that living beings vary in certain ways and preserve an amount of continuity in their succession; that the natural history of the world is, in large measure, a genuine account of what has happened. In short, whatever knowledge is of the experimental kind we take its deliverances as probably correct information about the things with which it deals. This habit of mind is by no means incompatible with the liberal recognition that we know but little and that the little we know is doubtless subject to revision. But we naturally hold tenaciously to that little until the need of revision has become apparent. The revised knowledge is, however, the same in kind as that which it supersedes.

II

Whether we regard perception as a process or as a content, concrete bodies of knowledge result purporting to give us approximately correct information about the world in which we live. Yet it has been repeatedly insisted that just because these two attitudes towards perception exist information about our world cannot ultimately be taken at its face value and with its natural import. For, it is urged, if we mean by perception as a content that which we immediately perceive, it is evident that, in the last analysis, perception is given to us only as a content. We may, of course, still speak of examining into the processes of perception and even of experimenting upon them, but it should be evident that these processes, so far as we directly attack them, are themselves perceptions, they are what we immediately perceive, they are contents. How, then, can we be justified in regarding them as the real processes which precede contents and result in perceptions? On the other hand, if we cut the contents wholly off from their supposed processes, how can we be justified in longer believing that they, with the bodies of knowledge built directly upon them, afford us reliable information about our world? Are we not confronted here with the problem of knowledge in its most serious and fundamental form, and confronted

with it in a manner requiring a procedure and point of view in marked contrast with the procedure and points of view which have given us our bodies of positive knowledge? Do we not need a theory which may free us from a situation which, otherwise, must remain ambiguous and paradoxical? We have in these questions one way of stating the central problem of modern epistemology.

More attention has been paid to the soundness of the solutions which have been offered of this problem than has been paid to their success in modifying positive knowledge and in giving us increased reliable information about our world. If, however, we do not raise the question of their validity, but ask rather concerning their importance for the bodies of knowledge which are steadily built up in the ways indicated in the early paragraphs of this paper, we are confronted with the fact that they have not modified these bodies of knowledge in any essential particular, nor supplemented them in any continuous and homogeneous manner. Their efficacy has exhibited itself primarily in modifying our personal estimate of the significance of what we know. Some illustrations of this result may reinforce the general statement.

Professor Karl Pearson's characterization of the concepts of science as conceptual shorthand has, as is evident from his "Grammar of Science,"

an epistemological basis. There may be no atoms and no ether. Indeed, he conceives their existence to be relatively an unimportant matter. The important matter is whether they, as conceptual shorthand, help us to resume the routine of our perceptions. But it is clear, none the less, that scientists attempt to discover the constitution of the ether, the weight of atoms, their structure, and their relations to one another. I say they attempt to *discover* these things, they do not attempt simply to *conceive* them. The acceptance or rejection of Professor Pearson's epistemology does not appear to affect their methods of research or the formulation of their results. He may lead us to believe that an epistemological estimate of the value of science is a very important matter, but it seems to be important not because it makes for a better or a more accurate science, not because it increases our success in using the results of research in industry and the arts, but because it tends to modify our personal estimates of the ultimate significance of knowledge. The "Grammar of Science" contributes, undoubtedly, to the methods and results of science, but its epistemology contributes not to their enlargement, but to their spiritual evaluation. It leads us to reflect on the importance of the proper estimate of science for social progress and citizenship.

As a second illustration, I take the following paragraph from Professor H. Poincaré's "Value

of Science": "Does the harmony the human intelligence thinks it discovers in nature exist outside of this intelligence? No, beyond doubt, a reality completely independent of the mind which conceives it, sees or feels it, is an impossibility. A world as exterior as that, even if it existed, would for us be forever inaccessible. But what we call objective reality is, in the last analysis, what is common to many thinking beings, and could be common to all; this common part, we shall see, can only be the harmony expressed by mathematical laws. It is this harmony then which is the sole objective reality, the only truth we can attain; and when I add that the universal harmony of the world is the source of all beauty, it will be understood what price we should attach to the slow and difficult progress which little by little enables us to know it better."¹ Even if these words contain the proper estimate of the value of science, even if it is true that the only genuine objective reality is a harmony which does not exist outside of the intelligence which discovers it and is yet common to many thinking beings, we find thereby no new ways to enlarge or correct our positive knowledge about the world. We may be freed, as Professor Poincaré suggests, from a certain fear of scientific truth which might otherwise oppress us. We may have our spiritual vision broadened. But the progress of science does not seem to be affected by such

¹ *Popular Science Monthly*, Vol. LXIX, p. 196.

services except in so far as they help to remove our prejudices or make us enthusiastic.

If we turn to the writings of those who are more exclusively epistemologists, the same general conclusions will be forced upon us. How repeatedly we have been told that epistemology does not disturb the ordinary processes of knowledge! How naturally philosophers have been led to commend it for its effects on character! "If, therefore," says Berkeley, "we consider the difference there is betwixt natural philosophers and other men, with regard to their knowledge of the phenomena, we shall find it consists, not in an exacter knowledge of the efficient cause that produces them — for that can be no other than the *will of a spirit* — but only in a greater largeness of comprehension, whereby analogies, harmonies, and agreements are discovered in the works of nature, and the particular effects explained, that is, reduced to general rules." Again he says: "From what has been premised, no reason can be drawn why the history of nature should not still be studied, and observations and experiments made; which, that they are of use to mankind, and enable us to draw any general conclusions, is not the result of any immutable habitudes or relations between things themselves, but only of God's goodness and kindness to men in the administration of the world."¹ Illustrations from certain contemporaneous phi-

¹ "Works," Fraser's edition, 1901, Vol. I, pp. 315, 317.

losophers might also be cited to indicate that in their opinion the great aim of philosophical inquiry into the foundations of knowledge is not to rectify or homogeneously to supplement the results of positive knowledge, but to afford us a spiritual estimate of these results. By considering epistemological speculations we are led to reflect on our relations to the absolute.

Considerations like the above point to the conclusion that the service which epistemology renders is not logical, but moral and spiritual. It affords us, to use the expression with which Professor Santayana describes religion, "another world to live in," a world where it may indeed be good to dwell now and then, but which is so different and remote from the world where perception is a fact and a process for investigation that the problem of perception receives thereby no genuine solution. In terms of that other world we may describe perception in ways endeared to epistemology, but when we seek information about what we perceive and how we perceive it, we return to the world of positive knowledge. Should we ask if this information is correct, we should find no answer in that other world. It would appear, therefore, that the problem of the relation between the content and the process of perception is not clarified by epistemology. Possibly it is a problem which does not involve the question of the nature and validity of knowledge at all, for it may well be that the rela-

tion between content and process is not a cognitive relation.

In spite of what appears to be its logical irrelevancy for all bodies of positive knowledge, epistemology, it may be urged, can hardly be dismissed for that reason. The processes of knowledge, studied as empirically and experimentally as you please, may occasion problems the solution of which may force us to recognize that there is a region of philosophical truth different from what positive knowledge reveals and beyond it, a region that forms indeed a supplement to that disclosed by science, but a supplement to be reached by other methods. That other world to live in may not at all be damaged by the recognition of it as another world; it may, rather, thereby receive added importance. If we are actually forced by the peculiarities of experience to frame a theory in the light of which we may scrutinize the truth of the bodies of knowledge we build up directly from the facts of life, we ought, no doubt, to submit to such pressure and do the best we can in the way of such a theory. Furthermore, it may appear arbitrary and high-handed to claim that epistemology itself is not built up directly from the facts of life, or that it is without experimental warrant. The facts of experience justify it, one may claim, and make it necessary. If its development leads us radically to revise our estimate of the results of positive knowledge, and to find in them a signif-

icance deeper than what they obviously disclose, is it not irrelevant to reply that epistemology does not alter the methods of positive knowledge or enlarge the content of history and the sciences in any continuous and homogeneous manner? The realist may clamor for the recognition of the fact that all philosophy can do is to tell us in the most comprehensive way what we have found our world really to be, but the idealist can always retort that he has found our world to be precisely that which his own idealistic epistemology has disclosed. The clamor and retort do not, however, advance our knowledge.

Yet I believe that the student who is interested in recording the results of modern intellectual inquiry is warranted in upholding the conclusion on which this paper has, thus far, insisted. We build up directly from considering the processes of perception, and also the results of those processes, vast bodies of knowledge without seeking any epistemological warrant for our procedure. We may build up an epistemology also, finding our warrant for so doing in matters which the bodies of knowledge referred to designedly and systematically neglect, and be led thereby to scrutinize the truth of our positive knowledge from the vantage ground whither epistemology has carried us. But if we ask what actual service this scrutiny performs, we seem compelled to answer that the service is not logical, but moral and spiritual. It does not

modify knowledge. It modifies character. It does not give us new or increased information about our world whereby that world may be more effectively controlled. It gives us rather considerations the contemplation of which is more or less satisfying to the spirit.

III

Such a situation is provoking. It has given rise to noteworthy systems of metaphysics which may serve to explain why the bodies of positive knowledge and epistemology have so little mutual relevance, and appear, nevertheless, to be natural and inevitable intellectual products. But the question I would raise here does not primarily concern these systems. It concerns rather the initial step which carries us to them. I should like to ask whether, as a matter of fact, the difficulties to which the theory of perception gives rise demand an epistemological solution. In other words, does the fact that the processes of perception result in contents which alone we can be said to perceive necessitate the question of the validity of what we know? Can the problem of perception be intelligibly defined as a problem of cognition? It has been quite generally assumed that we must ultimately define it as such a problem even if by so doing we become unintelligible, concluding that the content of perception is subjective because it is other than and subsequent to an objective proc-

ess which produces it, and then concluding that we must question or reconstruct the objectivity of the process because the only means by which we know it is the content. It is that assumption which gives point to the question whether we perceive things as they really are and which makes the claim that knowledge should be taken at its face value as a natural product appear so violent to many minds. Until this assumption is reckoned with we can hope for little clear appreciation of differences of opinion. I propose a general examination of it here in the hope that I may at least suggest that its claims are far from final.

“Fire may burn our bodies with no other effect than it does a billet, unless the motion be continued to the brain, and there the sense of heat, or idea of pain, be produced in the mind; wherein consists actual perception.” From the truth of this statement few would naturally dissent. It contains, however, a formulation of the relation between the mechanism and the result of perception which is ambiguously sustained by the facts. It is evident that unless the motion be continued to the brain we do not perceive the burn. But it is not evident *in the same way* that the sense of heat or idea of pain is produced there in the mind by the continuation of that motion. As has been repeatedly maintained, we can follow that continuation of motion pretty far and the farther we follow it the more we grow convinced that we should not,

could we follow it completely, ever come upon the sense of heat or the idea of pain. We are reasonably convinced that without sense-organs, nerves, and brain, we should never perceive the world as we do perceive it, but the more completely we understand organs, nerves, and brain, the less we think of ever discovering in them that world of varied objects and events. Now this fact has led, as it led with Locke, to the assumption that, therefore, the world which we perceive cannot be continuous and homogeneous with the process by which we perceive it. That world must be of a nature quite different, a world of "ideas," of "states of consciousness," a mental world, in short, the relation of which to the world in which the process occurs we must now speculate about and construct an epistemology to explain.

The disparity, however, between the world which we perceive and the world where the processes of perception occur, tends to vanish on close examination. When once perception as a content is styled "idea," many minds, under the logical restraint of such ambiguous propositions as "the idea of weight is not heavy" and "the idea of length is not long," have violently robbed "ideas" of the qualities they rightfully possess. What we perceive may be styled "ideas," but the name ought not to obscure the fact that some of these "ideas" are actually red and green, others sweet and sour, others noisy, others too heavy to be lifted, others

of measurable length. Were they not such, it is clear we should never speak of such qualities or seek to discover their causes. Epistemologists have struggled over the question of the relation of mind to matter, and idealists have insisted that matter is, after all, mental, but the obvious fact is that "states of consciousness" when made to include all that we perceive, do, some of them at least, possess the qualities which have been invariably ascribed to matter. Epistemology has done much to obscure this fundamental fact. Berkeley asks: "What do we perceive besides our own ideas or sensations? and is it not plainly repugnant that any one of these, or any combination of them, should exist unperceived?"¹ Clearly it is plainly repugnant and a manifest contradiction to suppose that perceptions are not perceptions, but is matter thereby destroyed? Is not what we perceive red? Is it not a deafening noise? Of those two things we perceive is not one longer than the other? Has not what we perceive momentum and weight? Is it not, then, plainly repugnant to conclude that the contents of the mind are, all of them, immaterial?

Even, then, if we assume that the world we perceive is not continuous with the process by which we perceive it, it is a world not so very unlike the world in which the process takes place. It may be made only of the stuff of consciousness, but

¹ "Works," Vol. I, p. 259.

then consciousness is the kind of stuff that may be condensed into a lump of sugar with which to sweeten coffee. Nor can we hope to obscure the fact by insisting that "states of consciousness" are at best "representations" of other things, which other things have the qualities in question. For, however that may be, the "representations" have also the same qualities and obey the same laws. The world which we perceive turns out thus to be of the same general kind as the world in which the processes of perception occur. Even if the two worlds are numerically distinct, they are essentially alike. The problem of their relation to each other is not a problem of the relation between two natures radically different and heterogeneous.

From these considerations certain conclusions appear to me to be obvious. If the processes of perception about which physiology and psychology inform us are the processes by means of which we perceive our world, then, if the perceived world is not continuous with those processes, it is none the less homogeneous with the world where they occur, and might contain them if they are ever given "in representation." If the processes belong to a world entirely physical, the "representations" belong to a world at least partly physical. In other words, if there is a physical world external to consciousness, there is also a physical world within consciousness. The physical things we perceive may not be the physical things which cause our perceptions, they

may be only representations or reduplications of them, but they are physical things none the less. There has never been discovered in "consciousness" any activity or power by virtue of which a physical thing even if reduplicated must lose its physical character or the general homogeneity of the world be disrupted. If, however, the processes about which physiology and psychology inform us are not the processes by which we perceive our world, the question of reduplication and representation is meaningless. We need no longer be perplexed over the problem of the homogeneity and continuity of the perceived world with the processes which give rise to it, for the problem then no longer exists.

The conclusions stated in the preceding paragraph cannot, however, fail to modify our attitude towards the problem of such continuity. To suppose that physiology and psychology give us no reliable information is preposterous. Yet the fact remains that the perceived world cannot be located at any point in the perceptive process forming therewith a continuous series of events. Must we therefore conclude that there are two worlds, one representing the other, both essentially homogeneous, and yet presenting a problem of continuity and relationship which we can never bring within the domain of positive knowledge, but of which we must always give only a speculative solution? This conclusion has become less easy with the rec-

ognition that the perceived world is essentially like the world of processes, is the kind of a world which might contain them and does contain them continuous with the rest of itself if the processes are ever given in representation. A world, a representative world, which can thus so faithfully copy, even in part, another world which is somehow its cause, would appear to contain within itself all the elements necessary to show how process and result are related to each other, at least "in representation." And if "in representation," then surely the need of duplicated worlds has disappeared so far as any positive result for knowledge is concerned, for process and result would, in that event, be given in a manner wherein their relation to each other could be defined. It would appear artificial and strained, therefore, if we were to continue to suppose that the problem of the relation between process and result is ultimately of an epistemological character. It appears rather as a problem of reorganization and rearrangement, of new relations in one continuous world, not the problem of the reduplication of a world forever excluded from the place where it is known.

In general, then, the problem of the continuity and homogeneity of the perceived world with the processes which give rise to it appears to be a problem lying wholly within the domain of positive knowledge. We may proceed to solve it without first securing epistemological warrant for so doing.

If we fail, the reason can hardly be that we lack the proper epistemology from the vantage ground of which our procedure may be philosophically scrutinized and corrected. For, again, the processes of perception are such as we discover them to be, or they are not. If they are not, there is no problem of continuity and homogeneity. If they are, that problem, from the nature of the case, does not involve the question of the validity of our knowledge of the processes or of the world resulting from them, but only the question of the sort of connection which exists between the processes and the resulting world. That connection is not cognitive, because the results of perception are not the knowledge of its processes; the thing seen is not the knowledge of the mechanism of vision.

The same result might be reached by considering the problem of perception directly and in detail. There are many cases in which we make a distinction between what we perceive and what really exists, cases, that is, where we seem forced to distinguish between appearance and reality, and ask whether we perceive reality as it is. Every one is familiar with such cases. Who sees reality correctly, the color-blind observer or the one not color-blind? Now it is interesting to observe that when we attempt to answer such a question we really restate it so that it loses all its epistemological character. For what we seek to discover is not whether the color-blind see reality as it is, but

why they make the color discriminations they do. If we succeed in our discovery, we have learned that reality is so constituted that, given certain conditions, certain results are the outcome. We need no epistemology to estimate the truth of our discovery. Again: we perceive the stroke of the distant woodsman's axe and its sound in succession. How, then, can we be said to perceive reality correctly, since stroke and sound are in reality simultaneous? But the difficulty thus presented is gratuitous. For most assuredly did we perceive stroke and sound simultaneously, the constitution of things would have to be different from what we have discovered it to be; light and sound would then travel at the same rate. The so-called spatial and temporal discrepancies in perception turn out on examination to be, not matters of cognitive importance putting the validity of perception in peril, but definite and ascertainable factors in the constitution of the world.

The question, whether we perceive the world as it really is, turns out thus to be an ambiguous question. If it means, is a perceived world the same as an unperceived world, the answer is, naturally, in the negative. If it means, have we discovered how we perceive the world, our answer will disclose whether we have or not. But if it is claimed that from the nature of the case we can never tell whether the discovery has been made, it is quite idle to speculate about the matter. It would ap-

pear, therefore, that whatever problems a theory of perception may involve, they are not problems of epistemology, but of natural science and positive knowledge. No matter what difficulties these problems present, they furnish no warrant for the assumption that they necessitate an epistemology which shall estimate the truth of those bodies of knowledge we build up directly from considering how we perceive and what we perceive. They necessitate only problems of definition and positive relationship. In the words of Jevons: "We cannot suppose, and there is no reason to suppose, that by the constitution of the mind we are obliged to think of things differently from the manner in which they are."¹

¹ "Lessons in Logic," p. 11.

SUBSTITUTIONALISM

SUBSTITUTIONALISM

By C. A. STRONG

TO provide the metaphysical background necessary for a full comprehension of my theory, I must ask the reader to make with me a certain assumption. This is that our perceptive experiences are not *in* the order which they *reveal*, or rather not in the part or place of that order which they reveal, but in a place represented by that of the brain-events with which they are (as we say) correlated. The experiences, in other words; *are* the brain-events, considered in themselves; and all other physical events, in themselves, are what may be called *infra-experiences* — something of like nature with human experiences, only far less highly organized. This is in truth as reasonable an hypothesis as that the experiences are themselves in the physical (or rather the extra-bodily physical) relations; that is, it puts them in the same world with the object, only in a different place — in the brain, instead of in the object perceived. The chief advantage of the conception lies, to my mind, in permitting a better explanation of the relation of mind and body than would be pos-

sible on the alternative theory. In any case I ask the reader to entertain it, and to note the consequences that follow in regard to the nature of cognition.

By cognition, here, I mean mere apprehension of or acquaintance with an object, whether it be a physical fact or a mental state, a memory or a feeling in another mind — not that placing and classification of objects thus cognized which takes place by connecting them in thought with other objects similarly apprehended.

The essential thesis of this paper is a proposition in regard to the *mechanism* of cognition as thus defined: that it happens by the projection of a sentient experience into the place of the object cognized, and is not a species of intuition (either in the sense of involving an immediate unity of cognition and object, or in the sense of apprehension of the latter by a qualityless consciousness). By projection I mean that the experience evokes actions (and thoughts, which are a sort of actions) appropriate to the object and not to itself as an experience.

Thus in memory (if I may assume that memory is the cognition of an earlier experience, and not simply the repetition in fainter form of a perception) we have a past experience which is the object and a present experience which is the medium of knowledge, knower, or *subject*. The present experience does not intuit the past experience (in

either of the above senses: either as identical with it — the past experience come to life again — or as affording immediate and, so to speak, achromatic vision of it). It is a more or less perfect reproduction of it, and it provokes us to act as if what we had to do with were the object and not itself as a present state. In other words, it earns its title to be a memory by serving as a satisfactory substitute for the object in the regulation of conduct. We may call this the substitutional theory of knowledge, or, more briefly, substitutionalism.

Substitutionalism must not be confused with what has been called the representative theory of knowledge. This theory supposes that what we have immediately to do with or cognize is the present revived experience, and that from this we pass to the object, the earlier experience, by inference. But, in the first place, there is no “we,” distinct from the present experience, to cognize it, the notion of a qualityless consciousness being a superstition; but what we *mean* by “we,” or the subject in this case, is precisely the present experience. And, in the second place, this experience does not in any way cognize or apprehend itself. What it cognizes or apprehends is the past experience or object, in that it reproduces it and will shortly elicit reactions appropriate to it. There being no other thing cognized in the premises, no middle fact or representative between subject and object, *the cognizing must be allowed to be direct.*

So that, on our theory, the object is at once independently real and directly known.

On the other hand it is not *immediately* (i. e., without medium) but substitutionally known — known by the projection of a present experience, as truly possessed of definite qualities as the past experience it knows. The genuineness of the knowing will consequently depend on two things: (1) on the knowing experience reproducing the qualities of the experience known with sufficient accuracy; (2) on its eliciting reactions really appropriate to the latter. Now, since the function of cognition exists primarily and originally for practical ends, what is sufficient accuracy will be determined mainly by the eliciting of the right reactions; whence it follows that, in a given case, the knowing experience may vary markedly from its prototype in richness of detail, in the cast of its qualities, and even in more fundamental ways, without forfeiting its pretension to be a memory so long as only it calls forth the right reactions. *Hence we must distinguish that projection of the present experience which constitutes the past experience as remembered from the past experience as it really was.* The latter alone is the object of knowledge; we shall be following accepted usage if we call the former its *content*. I need not say that this distinction is of capital importance — in no way inferior in importance to that so much insisted on between content and subject.

We are now in possession of the three fundamental epistemological categories, which are SUBJECT, CONTENT, and OBJECT. I shall try to establish that this account of cognition, with the distinction of these three categories, applies not only to memory, but also to perception, and even to internal observation or introspection.

We are apt to suppose the case of perception essentially different from that of memory — to conceive that it involves actual experience of a present object whereas memory only involves representation of an absent one. This is because we erroneously identify the object with the sensible appearance, or projected visual experience. A moment's thought exposes this fallacy. If the visual experience, either in itself or projectively, were identical with the object, the connected tactile experience, being something totally different, would be a second object; yet we feel that touch and vision have to do with the same thing. A blind man may as truly cognize a sphere by handling it as a normal man by seeing it, may he not? Then the sphere itself cannot be essentially either visual or tactile.

But the demonstrative proof that the object is other than the sensible appearance is what may be called the *lateness* of perception. The sensible appearance is necessarily synchronous with the perceptive state; whereas the object (*i. e.*, that

phase of it which is perceived) belongs to an earlier moment. Thus a star which we see in the sky may have ceased to exist ages ago: a sufficient proof, surely, that what we now see (I mean the visual phenomenon — not that which the visual phenomenon reveals) is not the object itself. We are habituated to the notion that a sound, for instance that of a distant whistle, is heard at a later moment than that at which its objective cause occurs — indeed, we see the escape of steam several instants before we hear the sound: we should apply the same analogy to vision. In both cases the perceptive experience arises only after the light-rays and sound-waves have reached the body. Hence the projected perceptive experience cannot be the object itself, but at most the object as perceived; it cannot be the object *sensu stricto* but only the content.

Perhaps the reader may doubt whether there *is* any object distinct from the perceptive experience as projected; the assumption of one may seem to him to involve dualism and an outsoaring of experience not permissible to an empiricist, or indeed to any other man. At least in the case of memory he will admit that we unhesitatingly outsoar both the present experience and its content, and assume an object independently real. But that object, you may reply, is only another experience. The answer suggests how the difficulty about dualism might be met in the case of perception: namely,

provided the object could be conceived as "only another experience" — as an outlying part of the world of sentiency, fundamentally of like nature with the sentient experience that knows it.

In contemporary philosophical controversy we may distinguish the following three groups: the realists proper, maintaining that knowledge reveals an object independently existent; the transcendental idealists, holding that it discloses a content eternally valid; and the immediate empiricists (or pragmatists in metaphysics), who teach that it has no reference beyond experience but is concerned with the evoking of beneficial reactions.¹ It may be interesting to note how these various contentions appear upon the substitutional theory.

The case of memory surely bears out the contention of the realists, that the object has existence independently of the knowing state and is in no way constituted by its being known. And we have seen that the same thesis may be defended with reference to perception. It is only the object *as remembered or perceived*, the content, that is constituted by the knowing, and we may suspect that the transcendental idealists have mistaken this for the object itself. If, finally, the object in perception

¹ I omit the subjectivists from this list because they play at present too effaced a rôle in philosophical controversy. Subjectivism is the man of straw that every novice may spurn at, even though he have failed to assimilate the important insight it embodies.

can be shown to be a non-human experience existing at a moment slightly earlier than that at which we substitutionally perceive it, the view of the immediate empiricists that there is no object independent of experience will only bear the construction in which experience means *all* experience, not that in which it means the particular experience engaged in knowing. On the other hand we may concede to them that knowledge has no reference beyond experience in *this* sense, that there is nothing in the knowing experience itself at the moment to indicate that it is cognitive or self-transcendent, and that its being so comes to light empirically only in the subsequent fact that it elicits actions appropriate to an object beyond it and not to itself.

What the transcendental idealists call the object is, we saw, really the content. Now to the content *esse = percipi* applies: it exists (or, more accurately, *appears*) only so long as the perceptive experience continues. So that regarding the *fact of non-continuance* the transcendental idealists — and the Berkeleians too, though what *they* refer to is perhaps rather the perceptive experience — are right, and wrong only in supposing what they are speaking of to be the object. On the other hand, if the substitutional theory be correct, the naïve realists are in error when they suppose that we perceive the object immediately (without medium) and as it is in itself. This conception shows that what they also, like the tran-

scendental idealists and the immediate empiricists, have in mind when they speak of the object is the sensible appearance or content.¹ Now, if content and object agreed in every respect, both as to qualities and as to relations, knowledge would be as true, or, more exactly, as adequate, *as if* it were immediate; though even then it would not be so. But to take for granted that, despite their existential distinctness, they do in fact thus agree is to overlook the large element of misrepresentation and mere symbolism that is consistent with the eliciting of the right reactions. Naïve realism is indeed the essence of theoreticalism or what Kant called dogmatism.

To sum up: the naïve realists are the special champions of the object — but they exaggerate the directness and adequacy of our knowledge of it; the transcendental idealists are the protagonists of the content — but they mistake it for the object, and so are betrayed into declaring the latter a thing discontinuous and relative to the mind; the immediate empiricists espouse the cause of (what they call) experience² — but they overlook the fact that experiences are cognitive when they lead to certain reactions precisely because those reactions are adjusted to independent objects.

¹ Unless it be simply the perceptive experience.

² *What they call* experience — for it will be found on examination that this is really content, or at least a fusion of content with experience in which the latter loses its purely sentient character and the former illegitimately gains existence.

Let us next consider what these theories have to say about the knowledge of consciousness (or introspection so far as not apperceptive).

The naïve realists, since they mistake the sensible appearance for the object and hold the latter to be physical and not in any sense psychical, must perforce assume a qualityless, "transparent" (I quote from one of them) consciousness as that which perceives it; a consciousness whose existence is distinctly additional to that of the object. But since at the moment this consciousness is wholly engrossed with the cognition of the object and unaware of itself, and at the next moment it is gone, the assertion of it seems to rest upon no empirical basis — as the word "transparent" admits. Other naïve realists seek to define consciousness as a peculiar kind of relation between objects, which objects can be in and yet get out of without forfeiting their existence: but, so far as the relation is additional to the things related, the preceding argument holds. Still others (now of the immediate empiricist type) regard the object as in another aspect psychical, and tell us that the perception is "in the object"; but since the latter, as we have seen, belongs to an earlier moment than the brain-state which corresponds to it, this amounts to the paradox that the perception of a star, for instance, happened years ago and not at the moment when as a matter of fact we perceive it; or else to the supersubtle doctrine that perception is never per-

ception proper but always memory of a perception not ours. In short, the sensible appearance having been transferred to the place of the object, nothing verifiable remains on this side to figure as the perception of it. Emotions, pleasures and pains, desires, thoughts are obvious and discoverable states: perceptions are sought for in vain, or else relegated to the world beyond the mind. All this time psychology goes on assuming that colors and shapes in their immediacy are what we mean by perceptions. Evidently the excellence of the naïve realist's knowledge of the object has cost him a subject.

If, on the contrary, as the substitutionalist maintains, that which plays the rôle of subject or consciousness is an experience projected, and the projection is due to subsequent reactions making the experience *virtually* the object, that is, a cognitive substitute for it, then the moment we abandon the objectifying attitude involved in these reactions the experience (or a replica of it) stands before us in its immediacy as that which a moment ago was the subject or knower; knower not by force of anything intrinsic, but simply in virtue of its external relations and of the rôle which it played as a medium of adjustment to the object. The knower could never be known if it were not at the moment (I must not say *experienced*, but) *experience* — an experience that can be recalled a moment after and then viewed in a different set of relations.

The transcendental idealist, next, since he identifies the object with the content and has nothing beside, and since content is a thing subjective in its material and objective in its reference, will declare object and subject to be aspects of a single fact. And this single fact he will doubtless (since he has nothing else) call by the name of "experience." An experience thus, in the case of memory, means for the consistent transcendentalist not the past state remembered nor the present state that remembers it, but the past state as it appears to the present state; in short, an appearance or phenomenon. And the transcendentalist will stoutly protest that there is no subject to which "experience" is given (the subject, according to him, being merely the abstract *I think* which is another aspect of any content), the necessity of a knowing experience distinct from the content being thus confused with the necessity of a qualityless consciousness distinct from experience; while his opponent, who agrees with him in defining experience as the unity of subject and object (*i. e.*, in applying the term to the content), will as stoutly insist that, since contents are inactive things, they must be given to a subject or "activity" that is not empirical at all. From this maze of misconceptions and mutual misunderstandings the substitutionalist is saved by his insight that the proper thing to be called experience is not an experience projected into the place of another experience but an experience simply.

But what is the proper thing to be called consciousness? Consciousness, we have seen, may mean sentient experience so far as exercising the function of knowing, and this is the sense in which the word is commonly used by psychologists; but it might also conceivably be used, and is indeed currently by philosophers, for the *mere* function of knowing considered apart from the existence that exercises it. This is the distinction between "consciousness as an existence" and "consciousness as a knowing." Content is the inner aspect of something which in its outer aspect is a functional relation between two existences: the latter is consciousness as a knowing. There is indeed such a distinction of aspects, and consciousness as a knowing is a perfectly real thing (though it might better be called simply cognition); the error lies in denying that consciousness as a knowing is the function of an existence, or in conceiving that the existence of consciousness, in any sense in which psychologists have a right to speak of it, is simply the existence of consciousness as a knowing (which a little reflection would show to be not an existence at all).

This distinction is, I think, the key to the interminable dispute over the efficacy of consciousness. Those who deny efficacy do so because they are thinking of consciousness as a knowing, or the external aspect of content: which is indeed inactive, because not an existence. Those who assert it are

thinking of consciousness as an existence, and substitutionalism is proof that this may be conceived as of the nature of experience or psychical.

But let us come to the immediate empiricists. Since they wholly reject an object distinct from the present experience, considering that the existence of experience is simply the givenness of objects, their cue must be to *deny* the existence of consciousness as a thing true at the moment and explain the conception of it as arising through the subsequent overhauling and rethinking of experience. They will therefore protest against the notion that experience is inherently psychical. Experiences, they will tell us, are originally objective. They become subjective or psychical only when, viewing them in retrospect, we take them in a connection in which they did not originally present themselves. To suppose them originally psychical, to seek to build up the world out of experiences taken as psychical, is psychologism, a condemnable theory.

Now, when the substitutionalist speaks of experiences as sentient or psychical, he does not of course mean that they are inherently *cognitive* or *subjective*. Experiences, we have seen, are cognitive only in virtue of an external relation. He means that they form the substance of the knowing mind, and that perceptive experiences, for instance, exist in exactly the same way, and for the same brief space of time, as emotional experiences or experiences of pleasure and pain. Moreover,

though the recognition of the cognitive function of experiences can only be subsequent and retrospective, yet what is recognized is something true of the earlier moment: the experiences did actually stand in these external relations, and they were therefore *originally* cognitive or subjective although not inherently so. The cognitive or subjective character is not conferred by the later retrospective act — experiences do not *become* subjective, as the immediate empiricist with a mistaken idealism suggests. But this means that they were, originally, entitled to be called consciousness, in so far as the exercising of the cognitive function entitles anything to be called consciousness. The existence of consciousness, in other words, should not be denied but its proper identity made clear.

Strictly speaking, neither human experience *quâ* exercising the function of knowing nor human experience *quâ* sentient existence is entitled to be called consciousness. By its derivation — *con-scious-ness* — the word signifies *the knowing of objects together with awareness of the subject*. It refers to that common experience in which, when absorbed in the contemplation of objects, we suddenly awake to the consciousness of ourselves as contemplating them. Not the self or subject that contemplates, but self-awareness, is what consciousness properly means. It has, however, been transferred by metonymy to the object of such awareness, the self or subject, and is constantly used in

that sense by psychologists. Finally, philosophers have seized upon the word and applied it to the mere function of knowing, in so far as knowing appears to present its object with a contemplative directness.

We may sum up these results by indicating their bearing upon the problem of metaphysics or ontology — that of defining the ultimate nature of the world. The metaphysician who would base his theory truly on experience has occasion to ask himself with some scrupulousness what it is exactly that experience reveals: *what it is that is given*. For out of the fragments of the given, or others fundamentally like them — fragments material, psychical, objective, or whatever they may prove to be — he must put the universe together.

Now “given” (that pet term of philosophers, which common men know not) is not only ambiguous but triguous, if there were such a word: it may mean *known*; or present in the way of content, *conceived*; or *present as experience*. (Present to what, do you ask, in the latter case? Present as a schoolboy is present whose teacher has not yet arrived; present to the walls and the benches — here the infra-experiences that make up the rest of the psychic organism; and the teacher, of course, the supervenient self-perception).

(1) If “given” means *known*, then what is known is exclusively the object. Whence it follows

that the universe must be put together out of objects. And indeed, since philosophy may safely be said to be a synthesis of things which we know, there could manifestly be no better material out of which to put it together. But, in doing so, the philosopher must not allow any trace of experience or the knower to cling to the conception of objects — he must not say that objects are inconceivable apart from a subject, or that they are essentially some one's experiences — since otherwise he is including in the conception of what is known something additional to what knowledge has revealed about it. It does not belong to the conception of a thing or existence to be known by or given to a subject; this is an extraneous relation, which accrues to it accidentally. It does not belong to the conception of my mind, for instance, to be known by you, though as an idealist you should egregiously think so. If then "given" means known, the universe consists of objects which are not essentially such, which are not experiences in the sense that they have anything of the knowing experience about their persons, and which are not *other* experiences than the knowing experience except so far as knowledge, original or subsequent, discovers this to be so. On the other hand these objects must not be taken at their face value, as identical in quality with what the first knowing experience presents them as being, since knowledge is substitutional and its primarily practical function

allows of a considerable divergence between the first presentment of an object and the object as it is (and is finally discovered to be). What objects are we can of course learn only through presentments, or through a collation and criticism of different presentments. This, we shall find, is the ultimate task of epistemology.

(2) "Given," next, may mean *present as content* (this indeed is probably the normal signification of the word); and those who have nothing but content and who call that "experience" will accordingly hold that the world must be put together out of experiences taken objectively. But an experience taken objectively means, in the case of memory, that you must not take the remembering experience and you must not take the experience remembered, but you must take the latter as seen from the point of view of the former — in short, a memorial appearance. And, similarly, in the case of perception, it means that we must not take objects themselves, but we must take them as seen from a hundred or a thousand different points of view. To perceptive and memorial appearances we must add all the different conceptions of the real, the possible, the fantastic, the non-existent that ever have been — since everything that a human being has ever experienced is indefeasibly real, just as he experienced it — and put them together into a universe as best we can. The result will, I fear, be a universe consisting

in large part of men's foolish and erroneous notions of things.¹ We shall later see that contents are not existences or metaphysical building-blocks at all, and that a universe composed of them is a mere chaos of appearances, a nulliverse.

(3) "Given," finally, may mean *existent as experience*, and this is in one sense the givenest of all. That is, it is most direct and vital to the knower, to his inner life and sentiency. Unfortunately, in the other senses of the word it is not at all given, either to an intuiting "consciousness" or to itself or to anything else. What makes experience appear to be thus given is the fact that it is so easily emerged from and thought about. We thinking beings, particularly philosophers, no sooner have an experience than, presto! we think about it and so convert it into an object. But in its primal character it was not an object; and so, if we take experiences in this sense and use them as building-stones to construct a universe, we shall again have to divest them carefully of all subjectivity and abjure the doctrine that the things which we know cannot exist without a knower. Now, since experiences, in order to be talked about by philosophers, must have undergone this sea-change and become objects, the third sense of "given" comes round in its metaphysical result to

¹ But are not men's foolish and erroneous notions of things, it may be asked, parts of the universe? *Quâ* sentient experiences, doubtless, but not *quâ* concepts. A concept is not an existence.

the first sense, leaving those only who turn contents into existences insecurely perched between two stools.

Objects, as we have seen, are given always substitutionally, under the form of contents, and the knowing experience is, so to say, the uniform giver. While then it is false that the knowing experience is the only thing we know directly, since it is not known, or given in this sense, at the moment at all, it is the only thing that by projection serves for the presentation of objects and that can be known retrospectively in its unprojected immediacy. If, therefore, in retrospect we abandon the objectifying practical attitude that gave to it projection, we have before us the piece of reality which a moment before we personally were; and this is the only piece of reality that can be given to us with so high a degree of immediateness and adequacy. *This unique piece of reality proves, when so cognized, to be a sentient experience.*

But I shall be reminded that I have advanced the view that objects of introspection too are substitutionally known, and asked whether this does not place *all* objects of knowledge, including even our most intimate experiences, in their proper reality effectually beyond us, so that what things are in themselves we can never know but only adjust our relations to them. We are now at the heart of the subject. This is indeed a searching

question, and if the suggested answer be correct panempiricism and all other gnostic theories must disappear from sight in the Unknowable. The question has two stages: (1) What ground have we, rational or other, for assuming that the knowing experience has to do with an object at all, distinct from its content? (2) What ground have we for thinking that the content holds good of or *describes* the object, so as really to give us acquaintance with it, or is true of it in any other sense than that of enabling us to live in its presence?

These are questions too large to be discussed in the present paper. I will only say that to me personally it does not seem impossible to answer them satisfactorily, and to obtain the final acquittal of knowledge (ultimate knowledge, that is) from the charge of not telling us the truth about reality.

Let us consider, in closing, certain consequences of the fact (if it be a fact) that the knowledge of consciousness or human experience is substitutional. We should have here the same trio of categories — object, subject, content — as before, and, introspective knowledge being retrospective, the cognitive relation would again be aimed backward, as in memory; there would be, in other words, the experience introspected, the later experience mediating introspection of it, and the projection of the latter into the seat of the former in the shape of

content. Hence the possibility of the same three theories as before: a realistic theory ignoring the whole apparatus of cognition and supposing the introspected experience somehow to stand before us with aboriginal immediacy and authenticity — naïve realism, in short, in the field of introspection; a transcendental idealism in the same field, regarding the mental fact as a thing whose essence consists in being observed (the proposition “feelings exist by being felt” being confused with the proposition “feelings exist by being introspected”) and degrading our states of mind to the level of appearances and patches upon reality — in one word, epiphenomena; finally, an immediate empiricism denying the psychical, as we have seen, to be a proper character of experience or reality at all. The labor of the substitutionalist must be devoted to showing, if possible, that in this case too the deliverances of knowledge strike through to reality and illumine it.

But we have once more been brought round to what is the deepest problem of the theory of knowledge — a problem of validity and not of mere mechanism: whether it is possible to make good our instinctive conviction that knowledge is really knowledge.

In the foregoing essay I have talked bravely of “my theory,” but the instructed reader will have recognized that it is in essentials Professor James’s,

as may be seen from his articles "On the Function of Cognition," *Mind*, 1885, pp. 27-44; "The Knowing of Things Together," *Psychological Review*, 1895, pp. 106-111; and "A World of Pure Experience, I," *Journal of Philosophy*, etc., 1904, pp. 538-543.

Honor then to whom honor is due.

WORLD-PICTURES

WORLD-PICTURES

BY WALTER BOUGHTON PITKIN

IT once happened that a circle of logicians and scientists withdrew from the turmoil of daily life to discuss the important questions of metaphysics. After having talked and waxed wise through learned intercourse for an unknown period, one of them chanced to look off into the world they had temporarily deserted, and discovered, to the dismay of the whole party, that the common people had fallen under the sway of a band of base sorcerers during their absence. The sorcerers, it appeared to the horrified onlookers, had won the masses over to a cheap but pleasing philosophy by playing upon their artistic instincts. From the shouts that reached the ears of the thoughtful men, it was inferred that the entire world of ordinary consciousnesses had gone mad over a picture philosophy, for men were heard to say: "I have a very good picture of that in my mind," and "The scene is indelibly printed upon my brain," and so on. And hordes of the possessed gathered around the sorcerers to listen with bated breath to Platonesque discourses. Filled with pity at the plight of the multitudes thus enthralled by miserable magic, the

thoughtful men resolved to descend forthwith from the windy hilltop where they had been convened and to break the insidious power.

After seeking vainly to disillusion some common people encountered on the downward road, the thoughtful reformers united in an onslaught upon one of the sorcerers whom they overtook just as he was about to wave his wand of sophistries over a large band of young men who had come to him in search of the Truth. The reformers held their peace long enough to hear the first words addressed to the newcomers. But no sooner had the sorcerer proclaimed that his was a philosophy of world-pictures, than a biologist in the ranks of the thoughtful men cried out: "Spare yourselves the temptation of being lulled by these phantasms, O youths! There are no world-pictures."

"A madman!" somebody hooted. But the biologist was undaunted.

"Call me what you will. The truth stands that there are no world-pictures. We men of science and philosophy have wrestled over the problem a month for every minute your misguided teacher has spent seriously over it; and in spite of many differences on other matters we agree that the world is so constituted that pictures are impossible. What you imagine are pictures are only rough symbols, signal lanterns in the night of ignorance."

"He speaks in pictures himself!" exclaimed a fair-haired artist.

"If you do not want us to smell a joke," called out a serious young engineer in the throng, "give us reasons for the faith that is in you."

"Look at that great dog across the road, young sceptic," the biologist said, "and tell me what you actually see."

"A shaggy, good-natured, young St. Bernard."

"I have blurred the paint on your world-picture sadly!" retorted the scientist tauntingly. "You see only a colored form, various shades of red and yellow, all of which you interpret by a sheer act of your own mind as a shaggy, good-natured young St. Bernard. You do not see the name, nor the size nor the shape nor even the color you ascribe to the dog. I should like to know what sort of a picture the world has given you of itself, then."

"The man's right!" exclaimed the artist in admiration. "I can speak with all the authority of my painful experiences in my master's studio; the colors and forms you think you see you just imagine. But, after all, I'm not sure that this disproves all world-pictures."

"It does n't," joined in a chemist. "World-pictures are not these common hasty perceptions that rush in and out of the mind like flares of summer lightning. The great teacher" — pointing toward the sorcerer, who was listening courteously but with some trace of amusement — "means by world-pictures the scientific theories that have been

built up by painstaking experiments and strict logic. In our mental picture of the law of gravitation, for instance, we have a genuine photograph of the behavior of masses. All the refinements of trained observation and reflection have contributed to make this law an exact statement of the facts about which it speaks."

"True, save for one word," the biologist answered. "Your law *formulates* the nature of gravitating matter with a few letters and mathematical symbols; but it does not truly *picture* it. It is a shorthand expression for the behavior of an infinite number of molecules, meteors, and nebulae. But it does not give you an actual image of all the motions of telescopic and microscopic bodies to which its brief signs refer and of which they claim to be an explanation. And you should be glad, young men, that you do not have to know the laws of Nature through the medium of pictures. If your minds were photograph galleries of the universe, you would soon be as embarrassed as a shopkeeper who tried to keep account of all transactions in his store by setting up a kinetoscope wherewith to snapshot the acts of clerks, customers, and wagon boys. Your knowledge of the world is luckily a set of accounts with Reality; your theories are the abbreviations of a bookkeeper, and they have all the advantages of brevity, simplicity, and freedom from useless details. Why crave so madly, then, for world-pictures, when you

already have something infinitely better for human purposes?"

Silence reigned among the hearers. Finally a country doctor agreed that the scientist's words fitted admirably in with what was known about the mechanism of the nervous system. "I never could straighten out the puzzle of world-pictures," he confessed. "How physical objects can ever reproduce themselves at the inside ends of the sensory nerves is simply unimaginable. I can understand how some sort of a current passes along the nerve tracts and registers itself somehow in the form of consciousness."

"Wonderful man!" was the murmur of many. "This is the arch-mystery."

"But it is absurd to say that the effect of a long chain of intricate causes can look like some early member of that chain."

"Perhaps the dissenter is right," a waverer shouted. "Let us turn him upon the great teacher himself, and we shall at least listen to a rare debate."

"Pray do not call me a great teacher," expostulated the sorcerer, as the crowd pushed the biologist and his thoughtful friends up to the steps from which the talk on world-pictures was to have been held. "I am only a poor artist who could never make a living with brushes and paints, on account of my bad habit of indulging in metaphysical dreams about the nature of pictures when I should

have been grinding out charcoal studies. While philosophers and psychologists have been busily delving into the mysteries of neurons and perceptions, I have contented myself with an innocently unphilosophical study. But, would you believe it? after having listened to many wise debates about the nature of knowledge, I became convinced that, in order to speculate about the relation of mind to the real world of which it is a part, one must know more about pictures than about the cortex. For in order to discuss rationally whether experience is pictorial or representative in any manner, we must first make perfectly clear in our minds what we understand by a picture. Or, as a mathematician might put it, we must make certain postulates about pictures; these postulates being derived in conference from our habitual, rough use of the word 'picture'; and then we must see whether experience, when critically viewed, can sustain these postulates. But which of the philosophers has ever done this?"

"We have been hearing about world-pictures and all other kinds of illustrated editions of the cosmos ever since the days of Plato," broke in an eminent physicist among the reformers. "So, if you can tell us anything new about these things, I shall go to church in the art galleries. Though I have never bothered to consult the dictionary about the word, I am sure a picture is simply 'anything which, when perceived, suggests to the

spectator some other object by virtue of its own resemblance to the latter.' ”

“An excellent beginning,” said the sorcerer. “You distinguish it from a symbol by the fact that the picture itself looks like the portrayed thing, while the symbol need not. But let us look farther.” And the crowd drew closer to the speakers.

“How complete must the resemblance be in order that we may fairly call a thing a picture?”

“Why, any perceived resemblance is enough to make the object resembling another a picture of the latter. The rude lines of a newspaper caricature constitute a true picture. And yet, the line between symbol and picture is not a sharp one; a representation of a very inquisitive person which showed the subject in the form of an interrogation mark on legs would be a picture only in so far as the clothing, facial expression, or some other one feature were actually portrayed.”

“Of course, you know that a fixed portraiture in colors or stone can give only one aspect of its subject.”

“No artist can show in a single landscape how a country-side looks from twenty different hilltops.”

“As there are indefinitely many aspects of physical objects, it follows that there are as many separate pictures possible, does it not?”

“And even more. In painting, at least, the view

from each angle and distance varies widely according to the color and intensity of the illumination and the clearness of the atmosphere."

"When Thackeray drew a picture of a huge cloud of powder smoke and labelled it 'The Battle of Trafalgar,' was this drawing called a picture of the battle only by way of witticism?"

"From the philosopher's standpoint," laughed the physicist, "a cloud of smoke was doubtless a real aspect of the famous sea fight. So, too, might a solid blackish smear on a canvas be a 'life-like' picture of a colored gentleman in an unlighted cellar on a rainy night. All this, my dear sir, is true but not philosophy."

"Perhaps not; but bear with me a moment. It often happens, I believe, that a single splash of color can, under certain conditions, be a perfect picture of a man's face, or of a house, or of a tree, or of almost anything visible."

"Certainly."

"You have observed," the sorcerer went on, "that the conditions under which you see a picture best are not those under which the portrayed thing itself can be best seen. An artist may look at a seashore on a gray, misty day from a vantage point a thousand feet from the strand; but the spectator of his picture will not stand a thousand feet away from the canvas nor put the picture in a gloomy corner in order to get the intended effect."

"Surely not!"

"It is hardly necessary to remark that the materials entering into the composition of a picture need not be the same as those of the portrayed object."

Merriment stirred the assemblage. "As if a portrait of Washington had to be made of human skin, eyes, hair, and clothes!" was the cry. "Why, the masters of music even picture emotions with nothing save melodies and chords."

"Do you not see," said the sorcerer, "why I believe in world-pictures? The resemblance between the empirical phase of an object at a given moment and the total nature of that object need be no more than the peculiarly limited resemblance we find between a portrait and the person depicted. What the 'mind stuff' is, out of which empirical phases of things are made, I'm sure I cannot say; and for our present purposes, this problem need not be solved. It is enough to know that, as a matter of every-day fact, these empirical phases do suggest, stand for, and imply other things than their own bare selves. And, even if we were to admit that these suggested things are in turn nothing but revivals of previous experiences, we should still properly call the former true pictures. Again, though we might concede, as some psychologists do, that there is no evidence to prove that one experienced character revives an old one by virtue of their qualitative resemblances, we should still have a right to say that the former is a picture of

the latter because of such resemblances as may be experienced after revival.

“But there is a real world which is known only at intervals and partially, as every dictate of practical thought compels me to believe; and experience asserts itself to be some sort of a picture of that world, though in what precise sense men are not agreed.”

A psychologist who had been listening to this dialogue with growing vexation burst out at this point:

“You are playing with us, O sorcerer. You talk of art works and would have us spring on the nimble wings of analogy to mental pictures. But if you seriously mean to defend the theory that your experiences are pictures of things outside of experience, I beg you to show me how you can possibly be aware of this startling fact. In order to know that a thing is a picture of something else, you must be able to put the two side by side for a comparison. How can you compare an experience, though, with something beyond all experience? How, with only a conjectural picture of an unseen, unknown object, can you pronounce the likeness good or bad?”

“This is the crucial question. The comparison of appearance with reality cannot be made directly, of course. But it is forced upon us all by our inevitable conception of the relation between cause and effect. Is it not agreed that the effect of a given cause is both like and unlike the latter? Like

the existence of the causal relation itself, this is unprovable in strict logic; so you may call it a 'category' or a 'postulate,' as you please. But the fact remains that it satisfies the essential demands of a picture theory; for, in so far as we have to think of every effect as being like its cause in some aspects, we have to concede, I believe, that every effect bears the same relation to its cause in reflective experience as a painting does to its theme in perception. For all our experiences are both causes and effects; thus it comes about that so far as they are the latter, they are 'expressions' or 'manifestations' of a wider reality. Incidentally, too, I might say that, in so far as they are causes, the real world is an 'expression' of human nature. It is not fair to protest against such world-pictures on the ground that the resemblance between cause and effect may be a mere mental necessity, a bare postulate, or something even more human. For, as in any ordinary work of art, it is just this mental necessity of experiencing one thing to resemble another that establishes the pictorial relation."

Said an eminent physicist who had thus far held his peace: "These abstruse words don't convince me that experiences are not mere symbols; nevertheless, I am charitably inclined towards your picture theory; for I believe that it could not bind a spell so easily upon all these thousands of business men and common people by empty tricks and wand-waving alone. Furthermore, I have observed

a peculiarity of organic matter which leads me to suspect that world-pictures are not utterly absurd. Let those who scout pictures on logical grounds alone consider that living forms have the power of impressing upon ordinary matter their own structures and functions. The segmentation of the lowest bacteria illustrates this as well as does the growth of the highest vertebrate. Is this not evidence enough to make us cautious about denying that matter can reproduce its own form and function in a different manner, namely in the world of experience? Merely because we cannot describe how this happens is no reason for doubting the event, any more than our great ignorance of the details of organic self-propagation should be an argument against the reality of birth and inheritance. Reason with me, therefore, as with one whom you may perhaps convert."

The thoughtful men smiled among themselves at these words; for they well knew the potent arguments the physicist held in readiness for the sorcerer's attack.

"As I understand you," the teacher said, "you say these signs do not portray the nature of the great envioning world, but simply serve to tell us how to act in reference to it."

"That's it. I do not deny, as some of my friends do, the existence of an external world. I see that it is illogical to infer from the fact that everything about which we can talk and think is *ipso facto* an

experience, the conclusion that these things are nothing but experiences. The dog I see over yonder may, so far as logic goes, be at one and the same time a percept and something more, say a living animal. So you see, I stand half way betwixt my friends who say the whole world is nothing but a complex of experiences and yourself with your theory of world-pictures. I differ from you in that I cannot see how anybody can know our experiences to be replicas of something outside of us. I think we have been led into the error of calling them such by virtue of their efficacy in practical life. My idea of that dog, for instance, I call true because its claims can be substantiated by later experiences. I do not ever compare my percept with a transcendent canine and find it to look like the latter; the seen, heard, felt, and smelt animal simply behaves consistently with the action and character demanded of him by my thought of him."

"Suppose we try your theory on the dog," the sorcerer said. "Tell me once more what you now experience the dog *as*."

"A St. Bernard, perhaps three years old, a jovial beast apparently, and with an exceptionally long, curly coat of brown and yellowish white. I might add more, but this will do."

"And how do you prove all this?"

"I ask his owner about his age, or even examine the animal's teeth and claws. I feel of his hair to test its length and texture; and I compare its color

with some standard shade. You see, I merely compare later experiences with an earlier one that is undergoing a test in their crucible."

"And do you believe that, while you were perceiving and testing the St. Bernard, the real object causing or contributing to cause your perceptions of the dog was substantially the same throughout the whole test? Or might a wholly new object have shot into your field of vision and touch and hearing every millionth of a second without varying either your perception or what you were referring to in your thoughts?"

"Of course, I can never prove this does not happen, for all my proofs are based, in the last analysis, upon differences in objects which can be perceived by some device. But the general lawful character of the world and especially my ability to manage it successfully with the aid of my ideas about it proves, for all practical purposes, the non-existence of the cosmic jest you have described. The same dog that I first saw is the object of all my later thoughts, and also the objective source of the perceptions I use in testing my original opinion of the beast."

"Excellent! I see you are willing to accept a common-sense assumption. Now tell me whether the objective dog proved by his actions, *i. e.*, by the kind of perceptions he led you irresistibly to in your test, — that he is really what you thought him to be at first?"

"Certainly the objective animal is the kind that produces in me experiences of a certain kind," the physicist admitted. "But, bless you! this is a very different story from the one you have been singing about world-pictures! Don't you see the vast dissimilarity between knowing that a percept is really of an external object that produces certain other percepts, and knowing that a percept is a copy of an external thing? I am saying merely that my first perception of the St. Bernard was true because, when accepted at face value and acted upon, it led up to other perceptions which it originally implied. Each perception is a symbol or mental sign of a reality; I cannot see therefore how a system of connected symbols can, simply by virtue of their power to hang together and corroborate one another, become replicas of the object to which they refer. You might as well say that a bookkeeper's balance sheet, whenever it 'comes out right,' is therewith transformed into a duplicate of the events and merchandise to which its figures refer!"

"Your ignorance of pictures has led you into two bad arguments. Although you have admitted that the objective entity we call a St. Bernard dog produces your perceptions (in part, at least), you refuse to call these perceptions pictures, even when they express the behavior of the external real. The real dog, you say confidently, is the object from which certain colors, forms, motions and other

qualities come into your mind; furthermore, he gives you somehow a knowledge of the way he acts in response to various stimuli, for you can make him do certain things, by whistling to him, commanding him to 'charge,' beating him, and so on. And yet all this knowledge, exact enough to guide even your future conduct, is not an expression of a real aspect of the external animal. Strange forgetfulness! You do not admit the possibility of there being a class of world-pictures like that well-known variety of human pictures which we call dramatic expression."

"O wild dreamer! Do you want us to believe that the universe is both playwright and comedian?" a metaphysician bawled.

"Not at all. I should be glad, though, if you would agree with me that the performances of comedians are only peculiar developments of a common property of all experienced things. And this is no mysticism nor cheap anthropomorphism. Dramatic expression is simply expression of actions. I would ask you to believe nothing more than that *the image of a thing's behavior in one or more situations is a genuine picture of the thing*. Always an aspect though, you should remember. As the tragedian expresses the true nature of his character by his behavior, his gestures, and his mien, so do these thrills in our organisms we call colors, sounds, and so on, express the natures of their objective determinants. Does not everybody as-

sume this in practical life? The engineer finds the nature of his steel girders 'expressed' in their resistance to stresses, strains, acids, heat, cold and so on. Things are truly what they do, in popular and scientific opinion. But does this not mean that they are reflected, in some manner, in their effects? And does this not make invalid your analogy between percepts and a bookkeeper's accounts? Mental signs are the effects of the very things to which they can be made to refer, whereas arithmetical characters and devices of entry in bookkeeping are inventions of a person who is only in the slightest degree conceivable, an effect of the merchandise whose movements he records with his symbols."

"Another point," the sorcerer continued. "Having overlooked the peculiar virtues of 'moving pictures,' you add confusion to your error by talking about pictures as 'replicas' or 'duplicates.' And by showing the absurdity of 'mental reduplication,' you fancy you have shattered the ordinary man's faith in world-pictures. You convince me more firmly than ever that philosophers should give more attention to pictures. It was not I nor my fellow-believers who started this rumor about mental pictures being replicas of external things. We mean by pictures just what every ordinary man and every artist does; something that presents an aspect of another; or, to avoid philosophical disputes, a presented aspect of a thing. I have never seen a picture in any gallery that pre-

tended to be a replica of the thing it portrayed. One picture may be a replica of another; but this means that it presents the same aspect of the portrayed thing as the other picture does. Some wicked sophist has confused most inartistically duplicates, models, and pictures. And he has thereby done violence to the English language and, still more disastrously, perturbed the ponderings of philosophers far and near. A duplicate, as any dictionary will tell you, is an exact counterpart of its original; we may speak of an inaccurate copy, but never of an inaccurate duplicate. In daily speech, we might call one coin the duplicate of another of the same minting; but when talking philosophy, we must deny that any two material objects can possibly be true duplicates. There are always some differences, if not in molecular structure then surely in the stresses and strains due to different spatial position with relation to other objects. Taking this strict interpretation, who could be so foolish as to suppose that the things in mind are duplicates of any external originals? Remember, furthermore, that a duplicate is not a copy merely in *appearance*, but also 'in substance and in effect,' as the dictionary says. Thus, a document looking precisely like the Declaration of Independence is a copy or facsimile of that document; but it is not a duplicate, because it is not a statement of rights and intentions of a body of men identical with the signers of the Declaration of Independence; it

does not disturb the equanimity of our English cousins, it has not the history nor the sentimental value of the immortal brief. Look to the law, my friends, for light. You will find this distinction between copy and duplicate is sharp and worth preserving in our discussions. Speak of mental pictures as duplicates, and the absurdity of the name appears at once in nearly every case. My thought of a cow is not identical with the cow thought of 'in substance and effect.'

"Nor," continued the sorcerer, "can we speak of world *models*. For a model means an object, usually in miniature, representing accurately the structure, rather than the outward appearance, of its original. A model can, to be sure, look like its original in many respects; but this is not always necessary; neither need a model function *precisely* like its original; the formal arrangement and connection of parts is the essential feature. I speak now, you understand, of models in the sense used by engineers and draughtsmen. You will surely agree with me that our experiences are not mechanical models at all; for the blue I see in the sky is not a pattern of the molecular arrangement of the air and the nerves involved in giving me that blue sensation. If it is impossible to call our experiences models of external things, there is a little danger in describing them as plans; I hesitate to use this term generally. It is confusing. A plan, being something which shows the parts of an object

in their proportions and relations, does not give the appearance of the planned object, but only a certain indirect indication of its structure, as the latter is known to be through a large series of measurements, taken at various times in different ways. A plan, we might say safely, gives the appearance of an object only to a person who knows the rules of the draughtsman and the general character of the thing he patterns. In experience, Nature is somehow her own draughtsman; but she does not follow a cut-and-dried rule of draughting, as the architects and engineers do in their work. The latter occasionally make perspective plans as well as projective ones; but they never go far beyond these two types; experiences, however, reveal not only the geometrical relations and structure of external objects but their motions, effects, interactions, and a thousand and one other peculiarities. For this reason, the word 'plan' strikes me as much too narrow; aside from this, too, there is the well-known ambiguity of the word, which sometimes misleads thinkers into the fancy that experience reveals a 'plan' — *i. e.*, a design or purpose — of the universe. Whether there is such a design or not, I do not know; but I am sure that no mere analysis of the nature of experience will reveal one."

"But!" exclaimed a philosopher in the rear of the crowd, "you surely recognize at least personal designs in all ideas and theories?"

"Of course our wishes decide what goes into some of our world-pictures. And we plan later pictures so as to harmonize as well as possible with earlier ones. But this proves nothing about cosmic aspirations."

"Perhaps not," a logician interrupted. "But it does demonstrate the nonsense of world-pictures. The scientists' plan of molecular structures is no more a true picture of matter than a hungry man's craving for meat is a photograph of a sirloin. Out of your own mouth you have made your pictures simply convenient plans of action, tools of thought which serve only to help you get along in life. Frequently you change your mind, get weary of old theories, and make new ones; sometimes because new discoveries force your hand, again for sheer love of mental gymnastics. Are these creations, in which personal impulses are mixed thickly, representations of anything save your own sweet will?"

"Surely! You speak as though my purposes were somehow painted in my world-pictures. As though the purpose of an artist who painted a mountain from the southeast at a distance of one mile from its base during early April mornings necessarily made all resemblance between canvas and mountain impossible! Do you not see that, out of thousands and even millions of aspects of a given object, the man with a purpose simply selects those that suit him? And, unless he is deliberately trying to play with the object, as a poet playing with horses

and men in fancy evolves a centaur, he does not wantonly add to the scene any marring evidence of his purpose. But let us suppose his selection of aspects is very unusual; does his curious purpose prevent men from grasping his picture as a genuine representation?

“Consider your own attitude toward any ordinary picture; when you stand before a landscape by Corot, do you fail to base your appreciation of the curious lights and the charming vagueness of even the grosser details upon your real or assumed knowledge of the artist’s purpose? Do you say: ‘This is no picture at all, because Corot has omitted thousands of minor lights and shadows and has heightened, out of his imagination, certain dominant tones in the scene, which a spectral analysis of the lights he actually saw in the portrayed landscape would never reveal?’ No, you judge his work from his own standpoint, as nearly as you can. You put yourself in the place of a man whose purpose is to bring out certain airy, romantic aspects of ordinary sunlight which men usually feel but cannot abstract from other peculiarities, such as sheer brilliancy and color; the place of a man who is trying to show masses of light rather than the details of things that are in the light. And you say, if you have any appreciation for this standpoint, that the picture is a wonderfully ‘true’ reproduction of the real landscape.

“So too with the physicist’s picture of molecules.

It is a plan of action, to be sure; but only because it is supposed to portray the nature of the matter the scientist deals with from the particular standpoint he wishes to take. Wishing to describe the behavior of material objects in mathematical terms, he looks at his data so as to bring the desired aspects into the foreground. But look how some turn this fact. They say that, because the scientist thinks out molecules from the point of view of their use in interpreting certain phenomena, therefore these entities and their determinations, however definitely conceived, should not be held for literally real. It is as if they existed; but in reality they are only artificial short-cuts for taking us from one part to another of experience's flux. They are only 'extraordinarily successful hypotheses.' If these men had only studied the rudiments of art, how easily they might have avoided this fallacy! They have failed wholly to see that, bound up inextricably with the very function and nature of a picture, is the selection of a standpoint; and with a standpoint goes an angle and an 'atmosphere' and, at least in the case of humanly devised pictures, among which it is fair to reckon our idea of molecules, the 'medium of expression' — the paints, brushes, and canvas, or again the words, signs, and formulas. They do not see the uselessness of refuting the picture theory of knowledge by trying to load impossible and unheard-of responsibilities on our poor pictures."

"Is matter really composed of molecules and atoms or not?" an untutored mind inquired timidly of the sorcerer.

"It is really molecular and atomic, just as the sky you see overhead is really blue. For what do you mean in each case? When you say the sky is blue do you signify that a man in a balloon ten miles up in the air might find tiny particles of matter which, under a sufficiently strong microscope, would appear blue precisely as the sky does as a whole to you from your present vantage point?"

"No. I mean that the sky is really of such a nature that its appearance from certain positions and under certain conditions of light is blue."

"In short, the real nature of the sky is not something we can talk intelligently about 'in general,' but must always be considered and judged from a specific standpoint and under specific conditions?"

"I should say so. I cannot imagine what a sky in general would be."

"Why!" exclaimed another untutored mind, with much disappointment, "then molecules are only appearances, after all! Matter simply *looks like* a molecular order from the physicist's standpoint at present. A nearer view under better conditions of observation may prove this hypothesis false. And then everybody will agree that all chemistry has rested upon a mere appearance for generations! Verily, we are such stuff as dreams are made of!"

"Cheer up!" cried the sorcerer merrily. "You are eating bread and pretending it is a stone. You are letting the metaphysicians confuse you with their vicious identification of 'mere appearances' and real aspects. Of course, the material world presents itself from certain angles and under certain conditions as being composed of molecules, atoms, corpuscles, and may be something even finer. Of course, men's notions about these constituent parts are constantly changing with the growth of knowledge. But so is the view of a mountain as you slowly approach the earth monster from a distance. If you say in ordinary common-sense life that each view of the mountain gave you a real aspect of it, not a mere conjecture or illusion about it, why not be equally unsophisticated when talking about views gained reflectively? By what right do you refuse to call a picture taken at a distance with a poor lens less truly a picture than one taken at short range with a finer camera?"

A biologist spoke for the untutored mind. "I refuse to call an error a representation of the thing it erroneously refers to. The blue sensed by the ordinary man when he looks up at the sky is construed by him as a picture of the upper atmosphere *and nothing else*. Yet we know the color is really a curious mental expression of a vastly complex interaction of air, ether, and nerves. As well call a picture of me one of you because you happened to be a party in its making!"

"Would you say," the sorcerer retorted impatiently, "that a canvas whose figures, coloring, and general purport you could not interpret at first glance was not truly a picture of anything? Or would you pronounce a photograph of some scene a pure illusion if you had mistaken it for a representation of some other scene? It seems to me that no specific error, however gross, supplies us with the slightest evidence against the picture theory; indeed, I am not sure but that the very attempt to base an epistemological doctrine of either subjectivism or symbolism upon the character of perceptual error must subtly assume some pictorial function in experience. For one perception or thought can claim superiority over another only by proving through practical tests that its own specific nature more adequately expresses the nature of the situation of which it claims to be an aspect."

"But how about cases of complete error?" asked a psychologist impatiently. "Do you say that the seen blue is whatever it comes to mean?"

"I think I am forced to this; but do not misconstrue the facts!"

"Good! Then a neurotic cloth merchant might interpret the blue as a huge silken canvas stretched over his diseased universe. A color-blind barbarian, unable to distinguish it from yellow, might call it a cloud of gold dust in the heavens. A child might think it a sea of water. And so on

through a thousand vagaries. Now, do you really mean to say that this one identical blue is at one and the same time a true aspect of a cosmic sheet of silk, an aureal mist, a suspended ocean, and all the other fancied objects to which it is attached by raw or sickly minds?"

"Exactly! Under the special conditions of each case, the simple color whose character may be proved by proper experiment to be given by the illumined atmosphere *acts* so as to mean or look like some curious thing. But the factors determining the interpretation or 'acquired meaning' of blue from moment to moment are obviously not identical with the factors bringing into existence the simple blue itself, any more than the causes of a photograph are identical with the causes of a man's thoughts about the latter. So, you see, I am quite prepared to admit that things are pictured which exist as pictured only under unusual cerebral conditions."

"But," said the physicist, "you have pointed out such a radical difference between ordinary pictures and cognitive experiences that I for one object to your calling the latter world-pictures. You say the blue I sense is, in some measure, an effect of the sky to which I come to refer it; so too is the act of interpreting the color one effect of the color itself. You thus make the experience, in all its stages of development, a phase of a real, more than empirical thing or complex. It is not a

copy, it is an aspect of the thing itself. Is it not doing violence to language to call a part of an object a picture of the object? I am willing to concede that experiences may not be bald symbols, for you have convinced me that they are closely related in nature and behavior to the whole order of things to which they refer and through which they guide us; yet I cannot call them pictures. I am willing to compromise, however, by calling them aspects."

To this the sorcerer replied: "I was long in doubt over this same question of terminology. It is true that men ordinarily think of a picture as a wholly external, independent representation. But is this not merely a practical abstraction? As a scientist and philosopher, would you not admit that even the most imaginative painting or trick photograph is an aspect of what it portrays, just in so far as the latter has influenced the artist to copy it or the spectator of the picture to interpret it?"

"You mean," inquired somebody, "that, philosophically speaking, even a word picture, say a description of a battle, is truly a phase of the battle, just as is the din of arms that strikes the ear of the soldier at the front?"

"Precisely. Such a description may even be a more significant aspect and part of the sanguinary event than many less remote phases of it are. It is not poetry but strict scientific fact to say that a picture is an aspect determined merely by a more

complex set of relations than the commoner aspects are. A landscape in oil before me has had to work its way farther and more laboriously through various media than would the original scene. All the intricacies of a sensitive, selective human organism interpose to modify and transform the former in a thousand different ways; and then there are all the influences of paints and brushes likewise working to make the more 'artificial' aspect different from the simple perception of trees and meadows separated from the eye only by a span of lighted air. When I consider all this, the difference between pictures and aspects appears to be only a relative one, adapted to many practical ends, no doubt, but not suited to epistemological purposes."

"At any rate," insisted the physicist, "you rob the word 'picture' of all its natural meaning by making representations really, in the broadest sense, pictures of absolutely everything contributing to their production: Rembrandt's portrait of himself is, to you, also a portrait of the brushes he painted the canvas with. Is this not the rankest quibbling?"

"Such extreme cases do make my theory sound absurd. And yet, remembering that the specific pictorial function of anything depends directly upon the character of the spectator's knowledge, and hence upon the attitude the spectator can and does take toward the perceived thing, I cheerfully grant your interpretation. I cannot think it a mere

figure of speech to say that a mind deeply versed in technique might find in the disposition of paint on Rembrandt's canvas a representation of the master's brushes quite as distinctly pictorial as is the splash of gray which we call a cloud in a painted landscape."

After a pause in which the learned men and some of the sorcerer's deluded followers commented on these words of the teacher, the physicist found an opportunity to speak again.

"You have almost won me over," he confessed. "But one more question which interests me as a student of matter. You say our experiences may be aspects or phases of real objects. You mean, then, that trees and stars actually get into our minds?"

"Yes, but not as a rat crawls into a hole. I hear some crying 'Topsy-turvydom!' They cry this only because they think I imply that an object is the same wherever it is. If a thing is defined as what it does, it must be located wherever it acts; but this does not mean that its nature and powers are the same at every point in its whole 'sphere of influence.' A dog is both at his tail and his nose, yet he is different at each point. If you want to worry yourselves into a madhouse trying to explain how the same thing can be different, do so for all me! But I have no taste for the game. This same 'differentiation and specialization,' so familiar to us all in organic life, appears in every object

as soon as we define things in the broadest, most inclusive manner. The colors I see, the heat I feel, the sounds I hear from moment to moment, the joy that stirs me, these are all proved by physiology and psychology to be manifestations of real things or systems of things. Now, whether or not *all* influences emanate from certain spatial centres we need not trouble to decide just now. It is enough to say that those things in space which *can* be connected with these mental things are most conveniently regarded as the 'true' centres of influence. Thus, speaking exactly, we may say that the sun itself gets into consciousness, provided we do not identify the *whole* star with the mass of gas at the centre of our planet's orbit. The sun extends far beyond its outermost fringe of quivering molecules, out into the most distant and unimagined abysses of the universe, wherever its ether disturbances reach. Only a series of practical abstractions has led men to narrow its bournes to the central fire; the crude animism of the savage who thinks of the sun as reaching down from the heavens, caressing the flowers, stinging men with its heat, and summoning the mists out of ponds is far better philosophy than the over-refined dissections of the metaphysician who writes thick, foolish volumes trying to explain how a ball of incandescent gas ninety-five million miles away can become an object of knowledge at a point where it is absent."

“Or how a mental sun can get ninety-five million miles away from its parent brain!” interjected a sorrowful youth who had taken a course in psychology.

“But both the savage and the philosopher commonly make the same mistake of interpretation; the philosopher does so deliberately at the outset, the barbarian comes to it innocently. I refer to the error that the whole nature or ‘essence’ of the sun is present in every act of the sun; that, for instance, when the sun is in somebody’s mind, it is there in precisely the same sense as it is in the heavens. This notion makes the savage call his dreams the spirits of the things dreamed of; but it prevents the over-cautious metaphysician from believing that the ‘real’ sun can possibly be known. While the savage is the victim of his own imagination, as a result, the metaphysician is only too frequently led to call knowledge ‘epiphenomenal,’ ‘purely ideal,’ or by way of compromise with the overwhelming evidences of realism in daily life, ‘a symbolic function.’ I respect the savage’s error, but think the philosopher’s unpardonable.”

“Your philosophy,” interjected a logician, “may be sound for aught I know; but it forces upon you a weird definition of a ‘thing.’ Every discernible, or if you will, every real, must be defined in terms of and identified with its activity, or, more broadly, with the part it plays in the whole scheme of things. As all things known to man are found only in highly

complex interaction, it follows that for philosophical purposes each thing must be defined in terms of the influence it exerts in all situations wherein it is involved. Every definition founded upon anything less is abstract, partial, and at best only adapted to special practical purposes."

"Precisely," the sorcerer acquiesced. "As any practical man would say, my definition of a thing is good for nothing in particular! But this seeming reproach does not distress me, inasmuch as epistemological dictum is not supposed to serve any end commonly called practical."

"Rank Relativism!" somebody muttered. The sun is really green because colored glasses make it appear so! Anything is anything that anybody can imagine it to be! Reality is nothing more than formless potentiality, mere $\psi\lambda\eta$, to be moulded by mind."

"That last remark is utterly false!" returned the sorcerer warmly. "Such a conclusion is possible only by assuming what I expressly refuse to, namely, that things are nothing but their appearances. The character of appearances is determined largely by many things not appearing. So far as my little fancy about world-pictures is concerned, the whole structure of the universe may have been foreordained, or on the other hand it may be still in the making. With nothing save a theory of experience to guide us, I do not see how this question is soluble; and for the purposes of

epistemology, it is irrelevant. But Reality surely is not *ὑλη*."

"And yet," interjected a bystander, "you say we make our world-pictures. We pick up colors and noises and work them up into all manners of theories, whims, and plans."

"True," the sorcerer returned. "But this is only one aspect of the knowledge process. There is another equally important one. Reals get into consciousness, and the reals getting in are world-pictures, representing part of the nature of Reality. The notion that two incompatible theories are here thrown together arises from the fact that the knowledge relation may be, but usually is not, considered, like every other relation, from the standpoint of any of the objects or factors involved in the relation. Remember that all factors contribute in some manner to determine the result. Looking at knowledge from the standpoint of the things that succeed in forcing themselves into knowledge, I should say without fear that the objects have 'made themselves known,' — that is, have developed empirical parts or phases. Looking at the same procedure, though, from the standpoint of all the other factors involved in producing and interpreting the simple experiences which come to be known as aspects of reals, I think it fair to say that 'predispositions,' 'purposes,' and 'associations' interpret the instreaming characters, making them mean aspects of particular reals. But if this is

a mystery to you, I beg you to think it over at leisure. For fast debate solves no puzzles but only arouses thought."

"You have uttered many true words," said the physicist in behalf of the learned men, "but we still suspect that you have dazzled us with subtle analogies. Our logicians, though, refuse to let us continue the argument by attacking your use of poetic comparisons, for they are of the opinion that perhaps all reasoning is based upon just this sort of analogy with which you have been interesting us. Rest assured, though, that in due season we shall return to this debate. Then, perhaps, the outcome will be decisive."

This happened long ago. The learned men have not yet come back to the market-place where the throngs of untutored minds still talk in the tongue of the sorcerers. And nobody knows why the conversation has never been resumed. For all those who heard the debate said that many things remained to be spoken on both sides. But perhaps the disputants have found too many more important things to do.

NAÏVE REALISM; WHAT IS IT?

NAÏVE REALISM; WHAT IS IT?

BY DICKINSON S. MILLER

I

OF the most recent tendencies to be observed here and there in metaphysical speculation there is one at least clearly healthy and hopeful, the impulse to return to "naïve realism." A feeling has arisen amongst certain philosophers akin to what the cultivated world without has long felt about the whole industry of their class, an impatience of the extravagance of theory that marks the most irresponsible of the sciences, and has marked it not least in the last century; a sense that though ingenuity and speculative enterprise and architectural instinct and the taste for sweeping views are at their strongest there, not so much can be said for sanity of judgment or intellectual poise. We have been told, for instance, that Reality is Obligation, the obligation to think our world in a certain manner; or that all we can know of it is that it is not like Appearance, the world our thoughts inhabit; or that it is all energy, or all will, or all idea; just as in objective times it was all fire, or all water, or all air. One category

after another is cast up before the attention of the time, and the different intellectual appetites seize upon their own. This is so in its measure in every science, but philosophy has the longest circuit to make before it must face the facts that will take no denial; and thus there is room for the army of *Privatdocenten* and their elders, who write books of which the first part consists in a refutation of all previous theories and the second in setting forth the next theory that the subject will bear. Philosophy is gone so far round the circuit that for some perhaps to embrace naïve realism is only one more *tour de force*; but for others it is to renounce the splendid follies of speculative imagination, and return to intellectual seriousness.

But the way back to naïve realism is not so plain as one might think. Naïve realism being the view natural to all of us in all but our philosophic moments, our philosophy should find it close at hand. Yet between these two spots on our own premises the way is apt to be lost. That is to say, to give an accurate analysis in the terms of philosophy, a true theoretic rendering, of the deliverance of our consciousness about the external world is so far from easy that the chief schools of philosophy differ in it, so far as they attempt it at all. It must not be forgotten that Berkeley declared himself at one with the plain man and at issue only with the philosopher "debauched with learning." Thereupon Reid and his successors, treating

Berkeley's doctrine as preposterous, and taking little note of this particular claim of his, undertook to vindicate against him the natural realism of the human mind. Hume, in essential sympathy with Berkeley's method of thinking, disallowed his claim in regard to the plain man, and gave a new account of the plain man's notion, which notion he admitted however to be unphilosophical. German idealists have in general been content to leave the plain man behind; yet if challenged they too would mostly have said that they had no quarrel with his notion. In English philosophy again, it is perhaps not always remembered that Mill's resolution of matter into "permanent possibilities of sensation" was intended as psychology as well as philosophy; not only as an account of the facts, but as an analysis of our instinctive view of them. Clifford, on one side at least of his theory, has the same intention. Most of these philosophers, then, have not felt that they were estranged from naïve realism at all. It has been left to their opponents to feel it.

Now it is at least possible that to fix our minds on the question in what character matter naturally appears to us may forward us in solving the problem of what matter is. In partial measure the former question is considered: metaphysicians study the perception of matter. But they do not with an equal scrutiny study its apperception. Of course we cannot do the latter without the

former; so that in the following we shall be partly on thickly trodden ground and partly on neighboring ground that is less frequented. Be it remembered that whatever profit may accrue to our metaphysics, the immediate aim here is psychological, the analysis of an instinctive conception.

Consider first the account given by long-established realistic systems of philosophy. They seem to say that the initial blunder of the idealist is in supposing that to the perceiver consciousness presents merely a "content," an opaque wall as it were with a painted scene upon it. Our consciousness in perception is not a mere possession of ours whose import ends in itself; it is consciousness of something; it is not a wall but a window; through it we look out upon a world beyond. This, they say, is the distinction of consciousness from other things, the unique property that makes it consciousness, namely, that it tells more than it is. The things beyond are not present in consciousness; they are present *to* it. These correlative prepositions "of" and "to" which are so fundamental in our language about experience are expressive of a unique relation. That there is an object distinct from the percept, says a philosopher, "is not an opinion about perception, it is the opinion of the perception itself." The opinion may be wrong; in that case perception is illusion, and the naïve realist is duped.

This runs smoothly enough in metaphor and colloquial terms; and its natural ring proves that it must in some sense or measure be true to experience. But in what sense or measure?

1. A perception, it is said, professes to reveal a distinct object, *i. e.*, it makes consciously by its very nature what is called a transsubjective reference thereto. That the perception is not the object is part of the perception's deliverance; it points the attention on to the object; "not unto us" say the perceptions. But this is demonstrably false. The demonstration is psychological. To distinguish something from our perception we must know the perception as such. This may mean either of two things. It may mean that the perception is conscious of its concrete self (if these words have a meaning) and distinguishes that from the object. But a glance of introspection shows of course that we are not conscious of any perception apart from the object. Or the theory may mean that we distinguish the object from perception in general or from consciousness in general. To do this we must have formed an idea of consciousness in general or of perception in general, and a distinct idea; and that "the child, the rustic, and the savage" have not done; nay, the financier, the general, and the senator have not done it; only the psychologist and a few others have really made the attempt. The theory asks that every man's mind should in every min-

ute do what philosophers in the centuries have not yet definitively done: distinguish in generic nature between object and perception. Besides, if introspection shows that we are not conscious of the concrete perception apart from the object, it shows as well that we are not abstractly thinking of its nature thus apart. A conscious transsubjective reference does not then arise in sense.

2. It turns out that "a conscious transsubjective reference" is a phrase without meaning. To say that the reference of a mental "content" to its object is contained in the mental "content" is a natural warping of language, but it is a confusion of ideas. One existence may resemble another, but (by the force of the terms) it cannot contain what is truly another, and if it contains a "sign" or "indication" of it we must remember what signs and indications are. They are always facts, individual in themselves, which lead the mind to another fact because they are associated with it. A picture is a picture *of* a man because, it being like him and I having seen him before, it carries my mind straight to him. A flag stands for a country's name and honor because being long coupled therewith it suggests them at once. But a flag is a piece of bunting and a picture is canvas and oils. The connection is made in my mind, which carries between the two, and the words reference and meaning are used for the relation thus created. The like is true of words themselves and gestures,

with their meanings. The meanings are associations. Indication never lies wholly in the indicating thing; it is a function of that thing, the fact that the thing works suggestively through the mechanism of the mind. This suggests a difficulty to be sure if we should come to the case of a man's thought of other men's minds or of his own past experience. Indeed the chief argument for the conscious transsubjective reference is that we could never have knowledge or thought beyond our mind if it did not exist. The argument does not directly try to make this kind of reference credible; it is an argument by threat. But I am not denying reference at large; only self-reference, or conscious reference, a reference which is not only a logical function but a psychological datum. And I cannot here pass beyond the problems of perception.

Wherein then is this realistic account true to experience? In its saying that in perception we recognize that the object is external to ourselves. We do recognize this; at least we are always ready in perception to recognize it at the slightest need; but "external to ourselves" does not mean external to our consciousness (as has often been pointed out) but external to our bodies, primarily, and, secondarily, distinct from our feelings and ideas.

We can now take one step forward. In perception we recognize an object. We do not recog-

nize a perception. After the fact two rival theories arise. One tells us that the object was really to be classed as a "content of perception" only. The other tells us it was a fact distinct from our consciousness. Whichever of these is the truth, we did not know it at the time. Now by naïve realism we mean the attitude of the ordinary mind toward the external world. We say, then, that, *when in the presence of the object*, naïve realism takes up with neither of these theories, but simply finds an object, of particular quality and property; the objectivity itself being resolvable into features of this quality and property; such as independence of the perceiver's will, location in space, membership in a trusted order of experience, and the rest.

But in retrospect (it may reasonably be asked) does not the view of naïve realism become different? When we look back on ourselves, even in irreflective memory, as having perceived a real object, do we not distinguish the object from our perception? The contemplation of our past selves as perceivers, however, is so much like the contemplation of other men as perceivers that the two are best considered together; as they will be presently.

Turn now from the traditional "realistic" account of naïve realism to Berkeley's. It is chiefly when speaking of objects while they are perceived that Berkeley claims the support of the

plain man. And it follows from what has just been noted that at least the plain man does not contradict him. Berkeley passes beyond the plain man in *classing* the present object as "idea," that is, content of consciousness, because immediately present. The plain man does not class it metaphysically at all; but the plain man does regard it as immediately present. Hence in this large department of the subject there is no conflict between them. I think this will be recognized without need of our lingering over the old misconception; namely, that Berkeley somehow took away from present objects their substantiality or their objectivity. Even Professor Paulsen, to be sure, despite his idealism, is found asserting that unless objects have something apart from our consciousness to support them (psychic life of their own, he would say) the theory becomes *Illusionismus*. It is one more instance of a thinker performing an analysis and then shrinking from the conclusion, slipping back into the old unanalytic language before he comes to record his result. Both Berkeley and the plain man regard the present object as really there, really placed in a portion of the space that appears; both regard it as outside the body of the perceiver; both regard it as distinct from his feelings and his ideas, in the vernacular sense of the latter word.

II

The real difficulty in reconciling the two views appears when we think of unperceived objects. Here also, however, Berkeley will admit no difference. The three distinct explanations he gives in different passages of what the unperceived object really consists in he attributes directly or implicitly to the plain man as being his theory also. In these explanations, briefly given, we can see the germs of ideas that have figured conspicuously in the subsequent history of philosophy. Let us look at them first as he offers them, though it will be convenient to take them in a different order from that in which they are found scattered in his writing.

First, the absent object exists because, though I do not perceive it, I think of it. It has the same claim to reality as a perception, being like that an "idea," a content of consciousness. Second, the absent object, indeed the whole material universe, exists as an idea in the mind of God. Third, the absent object exists in the sense that *if* I induce the train of perceptions called going to the spot, etc., I should perceive it.

The flaw in the first is that it affords no ground for distinguishing, as naïve realism distinguishes, between false thoughts and true thoughts about absent objects. The flaw in the second is that

we think our physical world simply, and not as bound in unity of consciousness with the subjective background of a divine mind. The flaw in the third is that, though it is quite true that we derive our materials for picturing things not now perceived solely from former perceptions, yet when I believe they exist now there is no "if" in my belief.

Yet though these suggestions so plainly fail us as Berkeley put them, yet they are susceptible of such development that we shall not wholly lose sight of them again. In part they have acquired this development in the course of subsequent thought, though not always with direct debt to Berkeley. Let us return to them in a developed form.

The first explanation becomes nothing less than one phase of the thought of Fichte, of which Professor Windelband in his early volume "*Pra-ludien*," and Professor Rickert in "*Der Gegenstand der Erkenntniss*" have made so acute and incisive a restatement. The distinction to them between true thoughts and false lies not in their relation to independent outer objects which thoughts are called on to resemble, but in relation to an inflexible law which they are called on to fulfil. This conception in Fichte was of course a pursuance of Kant's description of the outlying phenomenal world as a construction "according to rules," the "lawful context" of present expe-

rience. Professor Windelband tells us in his remarkable speech on Kant that human thought has yielded two radically different conceptions of that in which the essence of knowledge lies, the Greek conception and the German. The Greek still dominates most of the world. According to it, to know is faithfully to picture a fact distinct from the knowing. According to the German, of which it was the genius of Kant to lay the foundations, to know is to feel and follow an obligation of thought as such. In his essay on *Normen und Naturgesetze* he points out that there is an "ought" equally in thinking, in acting, and in judging of beauty. He dismisses metaphysics as "*ein Unding*," which frivolously concerns itself with the mythical originals of our thought; and leaves us logic, ethics, and æsthetics as the three departments of philosophy, all mandatory or normative. To which Professor Rickert naturally adds that the category of obligation, as compared with that of being, is seen to be prior and profounder.

In this, we have got far beyond Berkeley. Berkeley denied a transcendent reference as regards present things; it never occurred to him to deny it as regards other spirits, the spirit of God, for instance, nor yet as regards the object or "ideas" that *they* perceive. It is the *esse* of *things* that is *percipi* — the things of sense. Yet we have seen how the idealist tendency, begun in that lim-

ited field, urged occasionally further and led him to drop what I have called his first remark about absent objects — it may have been almost inadvertent — that the unseen fountain existed, since we thought of it.

Meanwhile Fichte and his followers have no trouble about unperceived objects, just (they would say) as the naïve realist has no trouble; though they go further than he in theoretic specification, they go side by side with him as far as he goes. Of course we believe in the outlying stretches of the physical world, they would say; that is the way we have to make up our world in consciousness. The perceived object is sensory; the unperceived object is given in the different stuff of idea; but they are both given, or made, and there is no perplexity about one that there is not about the other.

Do not these teachers, however, in their zeal of theory, prove too much for the gain they have in view? For this way of describing knowledge must apply to our knowledge of other minds; to halt at that point would be fatal; the view must compass all the world or none. And if we include other minds, then the world appears with "streams of consciousness" in it, isolated, each one, from all others, believing each in the separate other, each with the present physical object given and the absent object conceived; each confronting the question whether the absent object shall in thought-

ful conception be held real in the same sense as the separate minds or its own past. In other words we have our world over again with all its difficulties. These thinkers would draw the universe through the circlet of the knowing consciousness; it is their triumph in their own eyes that they draw it all safely through; but the result is that they have not left even the difficulties behind. Most plainly, our own problem stands just where it did before. The objection is not now what it was to the germ of Professor Windelband's doctrine as that germ lay in Berkeley's writing; the doctrine does not now deprive us of a distinction between truth and error about absent things. The objection is that it is too wide a principle to tell us anything about the special problem of absent physical objects at all. Let a thing be "real" for us if we are under an obligation to think it: we must still ask, *are* we under an obligation to think of absent objects as real in the same sense in which, for instance, we think of other minds as so. If the answer is yes, then we are metaphysical realists and not idealists at all. If the answer is no, naïve realism seems to go by the board. The doctrine tells us something about the forum or sphere of thought (I need not ask here what meaning is left in its description); it tells us nothing about what shall occupy it. It tells us perhaps something about the canvas and the pigments, but nothing about the features of the ideal scene. In

the ideal scene are separate minds that think about each other. Representation then is an inexpugnable fact in this world, implicit in the philosopher's thought as in his questioning reader's, and at the end of all idealisms, at the bottom of the most German of philosophies, Greek meets Greek after all.

Next we turn to the development of Berkeley's second device for accommodating absent objects, that of lodging them in the mind of an Eternal Spirit. This theory has been taken up since his time; it has been remarked, for example, that if a flower is "born to blush unseen" it is unseen only by men; it has its existence through entering into the divine experience. We are interested in this only as it bears on naïve realism. Suppose we simplify it by omitting from the mind thus suggested the background of personal will and feeling that theologies may attribute to God. There remains a consciousness in which the whole span and detail of the material universe is presented, and so far nothing else. Further I shall have to assume here, without reasoning, that what we call consciousness is nothing but what psychologists call "contents," together with the relation of joint presentation, or let us say simply empirical conjunction, that exists between them; the so-called subject or unity of consciousness being resolvable into this ultimate relation. Conceive now that this complete and duly joined "content" of a

world, of quality like ours, has also property and process like ours; that from moment to moment it changes, its parts move, and then rest, just as matter does for the naïve realist. Let the naïve realist think of his physical world in its entirety. Let us think of this other sort of world. What would be the difference between the two? Would there be any?

Hume would have said, none. I turn again to familiar history, for we are trying to find the metaphysical conceptions that lend themselves to an instinctive way of thinking; it is not always easy to see how such conceptions operate; so we go for instruction to the workshop where they were slowly forged and put together. Hume wrote: "All ideas are borrowed from preceding perceptions. Our ideas of objects, therefore, are derived from that source. Consequently no proposition can be intelligible or consistent with regard to objects, which is not so with regard to perceptions. But 't is intelligible and consistent to say that objects exist distinct and independent." Which means, to Hume's thinking, that it is intelligible and consistent to say that perceptions exist in detachment from personal minds. "This," he says, "is the doctrine of the vulgar, and implies no contradiction." If the vulgar doctrine is right, then, the immediately given object looses itself from our consciousness as our body turns away, but continues in existence and in its place in the

ordered world. It will be seen at once that this justifies the naïve realist as to the direct presence of the given object, and as to the reality of the absent object, without the disconcerting "if." And there is an amendment that suggests itself which would justify him still further.

For if such a colossal "content" or perception would be identical with the physical world of common belief, what is the point in calling it "content" or perception or mental at all? We have apparently found ourselves able to state the common belief in "idealistic" terms; but at the instant of junction between the two does not the idealism cease to be such; cease to retain any distinguishable meaning? We receive back our world, in which the streams of personal impressions are only a part, and in which the solid and continuous world stretches between. Shall we not then say that Berkeley did a service in showing objects as immediately present, and that the steady push of Hume's penetration removes all that was paradox and hard saying in Berkeley's system, giving us common sense again, philosophized? Since the distinction between consciousness and matter was the distinction between the streams of personal impressions and the independent world, no heart of meaning remains in calling the whole mental.

Well, this seems a broad landing-place for our thought. But even this does not prove an abiding place. There are reasons for moving further.

When Hume said there was no self-contradiction in saying that a partial content separates itself from the rest of my content and continues to exist alone, he was surely right. Conceive the *whole material world*, however, as a great content existing thus, and it becomes evident that the objects now present in my own field of consciousness must be duplicated in the world-content. Yet naïve realism does not think of presented objects as duplicates of complete objects unpresented. Shall we take refuge in saying that to the extent to which objects are presented to me, I actually share the physical world-perception; that the whole matter-content is not my content but that certain bits of it momentarily are? This seems a contradiction in terms. It would be to say that an identical content can be in two fields of consciousness at once. Try to suppose a content X in two minds or fields one of which contains also the private content A, and the second of which contains also the private content B. Joint presentation or empirical conjunction, that which constitutes a field, is a relation between contents. Now in field No. 1 X stands in a relation of conjunction with A, while in field No. 2 it does not stand in that relation, A being left outside. So the result is that the same content, at the same time, does and does not stand in a certain relation to another.

Ah! but, it will be said, add the amendment that suggested itself. Do not call the material

total a content, call it simply a material total, across which the little spots of consciousness flit without disturbing it. In that case the relation of conjunction in a field would be a momentary relation between objects, which when they passed out of that field they would bear no longer. With this change of words, however, the obstacle really remains as before. But another obstacle of the same order can perhaps be pointed out more briefly. Anyone who should accept such a view must hold also that the same object or part of it might be presented to two human minds; otherwise there would be a duplication repugnant to naïve realism. Here is the self-contradiction again; and I agree with Hume that we cannot ascribe such a contradiction to the familiar, constant thought of ages.

Thus even in their developed forms Berkeley's first and second conceptions of the unperceived object fail us as interpretations of naïve realism. In approaching the development of the third it will be necessary to consider deliberately what we mean by "consciousness," a term which according to the tradition of English philosophy I use in the same sense as "experience."

III

When I survey the things about me, my natural associations are physical and topographical, for the movement of my organs of sense has so repeatedly

made that sort of connection. From the side of the peach turned toward me I have looked round it to see if it was sound; I have presently cut it open, taken out the stone, seen the red fibrous tissue that had been about it, and the flesh of the peach. When I enter a room a large desk may hide much of it from me, but as I come forward I open up, as it were, part after part that was hidden. When I look at the desk a foreshortened aspect of one side appears to the eye, but I open it, sit down, pull out a drawer, look into a compartment, take up a memorandum-book, turn over pages, and so in a hundred obvious ways draw new perceptions from what I call the desk and its contents. I had entered the room from the house and the house from the neighboring places; and all these transitions effected again and again have left their strong impress on my tendencies of association. If I should stop myself on entering the room in a fit of self-cross-examination and ask myself what the desk, of which but one side shows, foreshortened, really is, my thought would pass rapidly to its writing-surface, its store of writing-materials, and the rest. If I try to take in a larger part of things my thought will be likely to pass to the whole room, the house, the neighborhood, the city, state, country, globe. That is what I mean by my thought's ranging topographically. There are, however, other physical associations besides those of neighborhood. Loosened screws may suggest a

screw-driver which is far away, or a carpenter who is farther. (A carpenter, be it said in passing, is for most of us in most of our moments a purely physical tool, comparatively self-acting as compared with the screw-driver.) Or a ball may carry the mind to a game in open country, or the fields to the ball, or a chemical compound to its component parts, or stones to pavements. In all this we are led from idea to idea or from percept to idea along the paths of perceptual succession or the paths of familiar thought about perceptions. This is objective association. Of such is the mental stream of most men, and even though they may experience or think of emotions and desires that color their percepts and ideas, yet these, though they are the motive power, are not so often the pivot of association. When they are it is for a moment, to start the mind in another objective train.

Now for some human beings at some times, for a very few human beings often, there is quite another kind of association. We sometimes try to attain it, though not very exactly, when we are trying to remember where we put something lost. We remember that we noticed the open desk five minutes ago. We try thereupon to remember what we did or noticed next. The contents and uses of the desk may come up to the mind with the importunity of custom, but we thrust them down; in psychological language we inhibit them by fixing voluntary attention with effort on the

idea we wish to keep: the desk just so far as we noticed it, as it figured in our personal experience, at that moment; for we hope it will call up what figured next (another object noticed, words heard, a feeling roused, a plan suggested), and so bring us in time to the forgotten action. The *usual* average sequences that keep offering themselves we keep excluding; what we invite is only the sequence that obtained on a particular occasion.

The introspective memory of the psychologist is but an effort to make this same difficult selective association exact. The difference between it and the objective association is the difference between thinking about consciousness and thinking about matter. It is one of the two sources of the distinction between consciousness and matter themselves. The other exists in the phenomenon of my fellow-man. His body is an object for consecutive perception like the desk; but I cannot find his perceptions in it; nor yet his feelings, willings, or ideas. If I want to realize his view of the desk, I must note his position toward it, and try in idea to see the desk in that aspect. All that belongs otherwise to the desk I must keep out; I only want what he saw or thought of; in other words I must now practice toward him in imagination, without the aid of spontaneous memory, the kind of selective association I employed to bring up my own past experience.

This points us at once to the nature of con-

sciousness in contradistinction from the nature of matter. I refer to matter as it figures in our natural view of the world, in the vernacular of thought. Matter is a thing of many aspects, consciousness has but one. Matter is permanent, the content of consciousness fleeting. The difference is not one of stuff, quality, or simple kind.

The power of thinking persistently of consciousness in its single aspect, which is its whole being, may be called the Psychological Imagination. It is of course very rarely found and can only be established by arduous practice. Clearly it must think of consciousness never as an object, for objects have many aspects, to be explored in succession; but always subjectively, as it comes. The being of a feeling is its being felt. Consciousness is the realm in which appearance and reality coincide. In this, of course, the single state or field of consciousness is meant. To think of such a field justly is to think of it just as it seems. It has no hidden nature, no underside, no central substance or kernel, no interior recesses to be explored. All that order of appurtenance is confined to matter, which reveals aspect after aspect to the advancing percipient, each aspect as perceived being called, when the psychological imagination seizes it, a content of consciousness. A consciousness may be in the given case a spatial content, but not being an object it is not in space. We cannot expect ever to discover it, to say "Lo here," or "Lo there" of

it. It is nowhere; a reality to which location is irrelevant. For itself it does not need to be discovered; in other fields of consciousness it can at best be represented.

Returning now to naïve realism, shall we say, as above, that for it the whole of the physical world has, like consciousness, an ultimate and irresoluble existence? Impossible. *Not even for the naïve realist.* For matter is a realm of aspects and these aspects, congenial enough in succession and alternation, will not fit together to form in one total a coherent world. The desk as a light-brown total or unit, the desk as a complex combination of drawers and compartments to the right and left, the desk as a wilderness of woody fibre, the desk, if you will, as a host of ordered molecules or atoms, are different desks, and will in no wise go together. I have spoken of the problem of present objects and the problem of absent objects. But every present object is partly absent; integral aspects of what we should call the object are unperceived. In perception we have one aspect, enlarged with a few strokes by peering imagination to represent the rest. For the foreshortened view we half substitute the normal view and under all is a depth of the tactual and kinæsthetic order. But if we could bring in all sides and features of the object we should not have a desk, but a monstrous medley. If the divine mind tried to *vergegenwärtigen* all matter at once, it would have,

not one picture, but a multitude of models on all scales. And precisely because this supposed "content" would really, *in kind or stuff*, be indistinguishable from the plain man's matter, the plain man's matter is subject to the same conditions. The incompatibility is logical. A continuous polished brown surface *is not* a fibrous or a granulated surface. A marshalling of what we scientifically mean by molecules is not what we familiarly mean by a desk. It may be said that we must on reflection let the desk go and keep the molecules. In that case we should have to ask whether the same difficulty did not apply over again to the various aspects of the molecules. But we need not, for our subject is naïve realism, which will not let the desk go, and yet recognizes no difficulty in keeping both.

The problem, briefly, is this. Can all the aspects of matter be compacted into what may be called one aspect? A mind that fully knew them, knew them even representatively, would know them so. And would this joint aspect be acceptable to naïve realism as its world in sum? That is the test. If not, then we cannot say that naïve realism regards its world as all concurrently real in the ultimate sense of that word. It is debarred from doing so by inability.

Of course, as we saw, the common consciousness has no "if." Really to think an "if" means to think in some form an alternative. But when I

represent unperceived aspects there is no practical need of representing any alternative to their appearing each in its due place and turn. Let us admit it at once: naïve realism does not bother itself to carry any idea about with it that is not essential for practice. My only reason for not accepting naïve realism as a sufficient metaphysic of matter is that there is no such theory. It is more naïve than we thought. All there is of it is acceptable. One phase of what there is of it is the flexibility of the conceptions with which it works, its ready submission to the substitutions of experience, the ease of mind with which for the moment it is off with the old and on with the new. The revealed aspect of the present object is for us a *sign* of aspects that might come. Now the naïve realist's notion of absent objects, being got from them when they or their kind were present, is always as much like his impression of present objects as possible. The aspects of absent objects that he represents in his thought of them are *signs* of the other phases in reserve. Just as he does not label them as mere signs when they are perceptions, so he does not when they are ideas. But their function and utility are to stand there in his mind as signs of more. When we so recognize and class them we do not undo naïve realism, we only interpret and complete it. In other words, naïve realism does not of course deny in its own thought that the aspects of its world are in the

strict sense concurrently real; it merely omits any affirmation on the subject; leaving it to metaphysics to perceive that they could not be.

The truth is that if we would understand our natural notions of the external world, we should ask ourselves, not what we think about it, but how we think about it; not what verdict do our judgments give, but what is the nature or method of judgment on the subject. We have not yet thrown off the tyranny of language. We still expect to find a judgment built like a sentence, and an idea packed with all that is mentioned in the definition of the term we have for it. But the elements of thought are fragments with forces, and a definition tells merely the ideas that are recoverable by the mind at need as justly pertaining to a term. Put your questions to the rustic or the child or your naïve self, and they will discourse fluent language in reply. The difficulty does not lie between the subject-matter and their answers, but between their answers and their ideas. Not that there could be any more apt expression of their ideas, but that the metaphysical cross-examiner may not understand the laws of expression. A little advance upon *naïveté* is a dangerous thing. About natural realism we have just reached what seems a sore extremity of paradox; but then when language is confronted with thought, as thought is seen by the psychological imagination, paradox is the invariable result.

Berkeley's third explanation of the existence of unperceived objects was developed in the doctrine of Mill that they are permanent possibilities of experience, and Mill attributed this view of them to the ordinary mind. Our business is with the ordinary mind only, and our conclusion brings us into the neighborhood of Mill's. (1) The stuff of which unperceived objects are made in our thought of them is of course solely the stuff of experience; (2) this stuff is never compacted by our thought into "whole objects," all the aspects of which exist together, as philosophical realism requires; (3) however, the fact that the aspects do not so exist together is not consciously recognized by our thought, which merely takes them in turn without trying to put them together and thus test their compatibility. The fact that we never try to weld all the aspects into one is the very reason why we do not know that they are incompatible and are surprised when we are told so. Unperceived objects then *are* possibilities of successive experience to us, as they figure in our natural thought, but Mill was mistaken if he meant that we class them as such.¹

Our problem in its totality has been double: what is naïve realism in its belief about perceived objects, and what is it in its belief about objects

¹ Very likely he did not mean this. Perhaps his language only marks the fact that he had not sufficiently separated the problem of naïve thought from that of philosophic truth, or thought the former problem out in the respect in which we have last been studying it.

unperceived? These terms, however, have been coarsely used and need analysis. In one possible sense no object is perceived. *Most* of what belongs to its integrity, and to its character as that object, does not appear in the perception. Should we then speak only of perceived aspects and unperceived aspects? No, for the "one possible sense" in which we here speak of perception is a perverted sense. Properly speaking, perception is the possession of certain aspects *plus* the preparedness for others. The aspects possessed shade off into vagueness. The preparedness, considered as a psychological fact, is no doubt partly the associative function of the elements present in consciousness, and therefore not itself present in consciousness at all; and partly an element of consciousness answering to motor processes half awakened. Perception is a step out into a world of objects, with the other foot held ready, as it were, for another step. Objectivity itself is the potentiality of further spatial aspects, and, these aspects being as we have seen incompatible, the nature of objectivity itself excludes the notion that they co-exist as "natural realism" turned into metaphysic would require.

KANT AND THE ENGLISH PLATONISTS

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BY ARTHUR O. LOVEJOY

A MEMORABLE philosophical discourse delivered by Professor James at Berkeley in 1898 — the discourse in which the term “pragmatism” as the name for a philosophical method was first sent forth upon its extraordinary career — concluded with this striking historical generalization: “I believe that Kant bequeaths to us not one single conception which is both indispensable to philosophy and which philosophy either did not possess before him or was not destined inevitably to acquire after him through the growth of men’s reflection upon the hypotheses by which science interprets nature. The true line of philosophic progress lies, in short, it seems to me, not so much *through* Kant as *round* him to the point where now we stand. Philosophy can perfectly well outflank him, and build herself up into adequate fulness by prolonging more directly the older English lines.”

The present paper is a partial commentary upon this text; and it will offer certain detailed evidence for the substantial accuracy of the generalization in precisely that particular where it may seem at

first sight, and to most readers, to be least plausible. By the generalization, as I here propose to justify it, I by no means understand it to be implied that Kant rendered no useful service to philosophy, nor that he is not historically a figure of exceptional importance. But I do understand the observation to mean — what I also believe to be a precisely verifiable fact — that the Kantian doctrine was destitute of any radical originality; that none of the more general and fundamental contentions of the “*Kritik der reinen Vernunft*” were particularly novel or revolutionary at the time of their original promulgation; and that the principal developments of post-Kantian philosophy, even in the ostensibly Kantian schools, were not dependent upon the historic interposition of the ingenious complexities of the critical system, but were clearly present in germ, sometimes even in fairly full-blown form, in the writings of Kant’s predecessors or contemporaries, out of which they would in time inevitably have come to fruition. To the generalization as thus construed I think it necessary, however, to make one exception, and that one of especial interest in the present connection. Kant’s doctrine of the “primacy of the practical reason,” — both in its negative and its positive implications, — I take to be the original of a large and diversified class of subsequent tendencies, of which the movement known as pragmatism is (at least in certain of its aspects) one variant. Even this idea was

assuredly not new; but I know of no philosopher before Kant who asserted it so definitely and precisely and gave it such place as a central methodological principle. But this one doctrine aside, the text which I have chosen needs, I believe, no very material qualification. That it seems — as it probably does — to many a glaring historical paradox, signifies only that the commonly, or at least the popularly, accepted general outline of the history of philosophy is lacking in any great measure of historical truth. That part of it which concerns Kant's historical place and relations is particularly full of *mensonges convenus* — as a result, partly, of certain peculiarities of Kant's own mind, partly of certain peculiarities of the intellectual fashions prevalent in Germany between 1780 and 1820, and partly of certain peculiarities of the dominant traditions of the German mind during the greater part of the nineteenth century. In the present short paper I shall, of course, attempt to deal only with a single phase of this subject.

The "older English lines" in philosophy which Professor James had in view in the concluding passage of his Berkeley address were, I suppose, chiefly the British empiricist and sceptical movements of the eighteenth century, and perhaps the Newtonian cosmical physics. That the critical or negative side of Kant's doctrine — its antimetaphysical temper, the positivistic note of the *Aufklärung* which sounds so loudly, especially in the Preface of the First Edi-

tion — is largely derivative from earlier, and chiefly from British, sources, is tolerably obvious, since Kant himself made acknowledgment of his obligation here in a famous and now hackneyed phrase. But, it may be asked, were not the affirmative, constructive elements in the system — the transcendental idealism and the arguments upon which it is based, the general doctrine of the *a priori* conditions of the possibility of experience, the assertion of the active functioning of the mind in the determination even of objects of sense-perception — were not these thoughts original with Kant and peculiar to him? Original they may have been, if by that is meant only that Kant did not actually borrow them from any other philosopher. But essentially new they were not. That they are rather generally supposed to have been so is due partly to the prevailing neglect — sometimes even by learned historians of philosophy — of an interesting and by no means uninfluential movement in English thought. The English Platonists¹ of the later seventeenth and early eighteenth century, though they are not as a rule easy reading, and though they are commonly very deficient in that critical and sceptical temper which Kant had learned from the long discipline of the Enlightenment, are not a negligible quantity in the history of European philosophy. But they have been very inadequately

¹ One cannot properly speak of them as Cambridge Platonists, for several of the most significant metaphysicians of this period and this general school — Burthogge, Norris of Bemerton, Collier — were Oxford men.

dealt with by English students of philosophy ; and it is a humiliating fact that, just as, until the publication of the first volume of Dr. Woodbridge Riley's monumental work, the only serious attempt at a comprehensive history of philosophy in America was due to a French scholar, so for a large part of the history of this remarkable episode in English epistemology and metaphysics we are still dependent upon M. Georges Lyon's "L'Idéalisme en Angleterre au XVIII^e siècle." Modern and accessible editions of the writings, or of judicious selections from the writings, of most of these early English rationalists and idealists are still to seek.

In what follows I shall undertake to present evidence for the truth of three observations respecting these English Platonists: (1) that they anticipated Kant in his so-called "Copernican revolution," and, incidentally thereto, in his general doctrine of *a priori* mental elements, in his main line of argument for the existence of such elements, and in the peculiar type of "transcendental" idealism which resulted from that epistemological doctrine; (2) that Kant was similarly anticipated by one of these English philosophers in the employment of the argument from the mathematical antinomies concerning infinity and infinite divisibility as a final and definitive proof of the ideality of the spatial world; (3) that the most characteristic ideas and tendencies of the so-called neo-Kantian school, especially in England and America, are already plainly recog-

nizable in certain of these English Platonists, so that one is entitled to say that the metaphysical and theological conclusions and the dialectical devices which this school is supposed to have elaborated out of Kantian materials might equally well have been derived from the English idealists of the seventeenth century. In undertaking to demonstrate these three points, I necessarily must limit myself to emphasizing similarities; through the resemblances to be noted there run, of course, plenty of differences of detail, of mental temper and attitude, of historic heritage. These differences are not less instructive than the analogies, and it would be interesting to scrutinize them closely, if space permitted. But in the limits here available, it seems more to the point to dwell chiefly upon that side of the historical relations in question which appears to be the more frequently overlooked.

I

The part of Kant's epistemology which seemed to him so novel and so momentous that he likened it to a "Copernican revolution" in philosophy, consisted in the hypothesis that knowledge depends upon the "conformity of objects to our mode of cognition" rather than upon the conformity of our mode of cognition to objects. This doctrine that "the world as object is conditioned by me as subject," whether regarded as a daring

paradox or as an ultimate truth, has generally been supposed to be sufficient of itself to establish the reputation of the Kantian system for epoch-making originality; and, especially by the literary popularizers of philosophy, it has very frequently been looked upon as the supreme example of the profundity of Kant's speculative insight. It is, says Mr. W. S. Lilly,¹ "the deepest thought that has ever entered the human mind." However that may be — there is little profit in disputing about superlatives — the thought is at all events one that had entered a number of English minds, and had been set forth in more than one widely-read book during the century preceding the birth of the Critical Philosophy. To speak of it as a peculiarly "Kantian" contribution to the world's stock of ideas is an historical absurdity; that Kant himself considered it a thing startling and revolutionary is only one among many illustrations of his astonishing ignorance, or forgetfulness, of all save a very few of the philosophical discoveries and tendencies of his own age and of the generation or two that preceded him. For the English Platonists could not well have been more explicit or emphatic than they were in insisting that the mind is no *tabula rasa* but a thing possessing a fixed constitution of its own antecedently to experience; that, not only in reflective cognition but even in sense-perception, it has an active, and not a merely passive, rôle; and that

¹ *Fortnightly Review*, August, 1906.

the object is determined by the nature and categories of the mind rather than the contents of the mind by the simple infiltration of ready-made objects. In the most celebrated of the productions of the Cambridge school, Cudworth's "True Intellectual System of the Universe" (1678) — a work that has, behind all the quaintness and naïveté of its style, a good deal more philosophical acumen than it usually gets credit for — the opinions in question are expounded with characteristic prolixity. Cudworth and his like-minded contemporaries were brought to the elaboration of this type of doctrine largely by their reaction against the empiricism and implicit scepticism of Hobbes, to whom their relation was entirely analogous to that of Kant to Hume. I am inclined to think, however, that the empiricism of Hume represented a greater advance — in clarity of thought and force of reasoning — over that of Hobbes, than did the apriorist rationalism of Kant over that of the English Platonists.

"We have," says Cudworth, "set it for the eleventh atheistic argument, that knowledge being the information of the things themselves known, and all conception the action of that which is conceived and the passion [*i. e.*, the passive receptivity] of the conceiver; the world and all sensible things must needs be, before there could be any knowledge or conception of them. . . . For, according to these atheists, things made knowledge, and not knowledge things; they meaning by things here only

such as are sensible and corporeal. So that mind and understanding could not be the creator of the world and these sensible things, itself being the mere creature of them; a secondary derivative result from them, or a fantastic image of them; the youngest and most creaturely thing in the whole world. . . . Now we shall, for the present, only so far forth concern ourselves in confuting this atheistic doctrine as to lay a foundation thereby for the demonstration of the contrary, namely, the existence of a God, or of a mind before the world, from the nature of knowledge and understanding. First, then, it is a sottish conceit of these atheists, proceeding from their not attending to their own cogitations, that not only sense, but also knowledge and understanding in men, is but a tumult, raised from corporeal things without pressing upon the organs of their body; or else, as they declare themselves more distinctly, nothing but the activity of sensible objects upon them and their passion from them. For if this were true, then would everything that suffered and reacted motion, especially polite bodies, as looking-glasses, have something both of sense and understanding in them. It is plain that there comes nothing to us from bodies without, but only local motion and pressure. Neither is sense itself the mere passion of those motions, but the perception of their passions in a way of fancy. *But sensible things themselves* (as, for example, light and colors) *are not known and understood either by*

the passion or the fancy of sense, nor by anything merely foreign and adventitious, but by intelligible ideas exerted from the mind itself, that is, by something native and domestic to it: nothing being more true than this of Boetius, that ‘Omne, quod scitur, non ex sua, sed ex comprehendentium natura, vi, et facultate cognoscitur:’ Whatsoever is known, is known, not by its own force and power, but by the force and power, the vigor and activity of that thing itself, which knows and comprehends. Wherefore, besides the phantasms of singular bodies, or of sensible things existing without us (*which are not mere passions neither*), it is plain that our human mind hath other cogitations or conceptions in it; namely, the ideas of the intelligible natures and essences of things, which are universal, *and by and under which it understands singulars.*”¹

Here, then, we find in Cudworth the good Kantian doctrine that even the presented object of sense is what it is because it gets its constitution from the constitution of the mind that apprehends it; although Cudworth, like Kant, intends at the same time to hold fast to an essential realism, and has no thought of maintaining that *all* that there is to the object is furnished it from the perceiving mind. And for the further Kantian contention that we are able to make valid universal judgments *a*

¹ “True Intellectual System of the Universe,” London, edition of 1820, III, pp. 400–403.

priori and that the ground of this ability lies in the mind's possession of certain constitutive concepts not derived from experience, the pages of the "True Intellectual System" are full of reiterations of it, couched in seventeenth-century and Platonistic language. "As for axiomatical truths," says Cudworth, for example, "in which something is affirmed or denied, as these are not all passions from bodies without us (for what local motions could impress this common notion upon our minds, that things which agree in one third, agree amongst themselves, or any other?); so neither are these things only gathered by induction from repeated sensations. . . . Thus Aristotle ingeniously: 'It is evident that there is no knowledge (of the universal theorems of geometry) by sense. For if we could perceive by sense that the three angles of a triangle were equal to two right; yet should we not rest satisfied in this, as having therefore a sufficient knowledge hereof; but would seek further after a demonstration of it; sense reaching only to singulars, but knowledge to universals.' When from the universal idea of a triangle, which is neither here nor there nor anywhere without our mind, but yet hath an intelligible entity, we see a plain necessity, that its three angles must be equal to two right, then do we know the truth of this universal theorem, and not before: as also we understand that every singular triangle (so far as it is *true*) hath this property in it, wherefore our knowledge of this,

and other like truths, is not derived from singulars, nor do we arrive to them by way of ascent from singulars to universals; but, on the contrary, having first found them in the universals, we afterward descending apply them to singulars: so that our knowledge here is not after singular bodies, and secondarily or derivatively from them, but in order of nature before them, and proleptical to them.”¹

Among the arguments in Kant's “Transcendental Æsthetic” by which he seeks to establish the apriority of the *Vorstellungen* of space and time, the only one that can be considered entirely unequivocal and important, the one which he himself, in the Second Edition, erects into a separate section of his reasoning under the name of the “Transcendental Exposition,” is that based upon the alleged existence of indubitable and clearly *a priori* judgments in the mathematical sciences and in the general axioms concerning the time-relations of phenomena. Similarly the English Platonists habitually rest their case for the reality of *a priori* mental elements chiefly upon the certainty of the fundamental propositions of mathematics — propositions which, because they are universal, could not be justified upon the basis of experience. This habit in the Cambridge men is perhaps sufficiently exemplified by the last citation from Cudworth; many more examples could, however, be drawn from that writer and from More. The essential

¹ “True Intellectual System of the Universe,” London, edition of 1820, III, pp. 403-405.

argumentative basis for the apriorism of these seventeenth-century epistemologists was thus identical with the only serious argumentative basis for the apriorism of Kant's "Transcendental *Æsthetic*."

It is, of course, true that these English Platonists made no such definite and methodical attempt to discriminate and precisely enumerate the several *a priori* elements in knowledge, as did the peculiarly systematic and taxonomic mind of Kant. Cudworth and his school often write as if all sorts of miscellaneous general concepts might be supposed, like the original Platonic Ideas, to exist in the intellect *a priori*. This they certainly did not really mean to affirm; but they undeniably left the question concerning the exact character and limits of the *a priori* as an unsettled problem for their successors to deal with. Kant must be said to have made an honest, though a far from successful, effort to grapple with this problem. But in doing so he was only correcting and filling in the details of the general epistemological scheme which he shared in common with his English rationalistic predecessors; he was not discovering a new and revolutionary philosophical principle. And there are numerous indications in the work of seventeenth-century English writers that they primarily meant by their "proleptical" or *a priori* notions those *relational* ideas or categories which enter into every presentation of objects and make possible the unity

and interconnectedness of rational experience; and there are occasional rudimentary and tentative attempts at an enumeration of these categories. Thus Henry More:¹ "Besides this, there are a multitude of *relative* notions or ideas in the mind of man, as well mathematical as logical, which if we prove cannot be the impresses of any material object from without, it will necessarily follow that they are from the soul herself within, and are the natural furniture of human understanding. Such are these: Cause, Effect, Whole and Part, Like and Unlike, Proportion and Analogy, Equality and Inequality, Symmetry and Asymmetry, and the like; all which *relative ideas* I shall easily prove to be no material impresses from without upon the soul, but *her own active conception proceeding from herself whilst she takes notice of external objects.*" Kant's systematic analysis of the *a priori* faculties of the mind seems to have been still more closely foreshadowed in the "Organum Vetus et Novum" (1677) and the "Essay upon Reason and the Nature of Spirits" (1694) of Richard Burthogge, an Oxford man. But, unhappily, neither of these works of this noteworthy English philosopher appears to be available anywhere in the city of New York; and I am dependent for information concerning them upon M. Lyon's invaluable study. If there be any reader of this paper not acquainted with M. Lyon's book, I can only refer him to it for

¹ "Antidote against Atheism," 1655, p. 22.

a too brief account of a system exhibiting, in its general outlines, a singular degree of resemblance to the theoretical philosophy of Kant. But I cannot refrain from including in the present compilation of English anticipations of Kant a passage of Burthogge's expressing very precisely the peculiar type of the Kantian idealism — an idealism primarily based upon, and limited in its bearings by, the epistemological theory of *a priori* mental elements. It is necessary to turn this back into English as well as may be from M. Lyon's French rendering.¹

"For us men," says Burthogge, "things are nothing save in so far as they are known by us, and they are known by us only as they exist in the sense or imagination or thought; in a word, as they exist in our faculties. . . . Each faculty takes a part, though not an exclusive part, in the production of its immediate object; as the eye produces colors and is said to see, as the ear produces sounds and the imagination images, so the understanding produces the ideas or conceptions under which it apprehends and beholds things. So that all the immediate objects of human thought are *entia cogitationis*, or appearances only; they being not properly and (if I may be allowed to use a school-term) *formally* in the things themselves . . . but only in the faculties of the intellect." This is pure Kantian (as distinguished from Berke-

¹ "L'Idéalisme en Angleterre au XVIII^e siècle," pp. 75, 76.

leyan) idealism; and Burthogge holds fast as tenaciously as Kant to the affirmation of the real existence of things-in-themselves behind these mentally apperceived and subjectively determined objects of experience. He does so, also, as M. Lyon points out, for a like reason, and with a like inconsequence; he feels the necessity of assigning some extra-mental *cause* for the concrete, contingent, empirical element in the content of sensation.

It is natural to inquire, at this point, whether the philosopher of Königsberg can have known and in any degree have been influenced by these English precursors. That Kant should not have read Cudworth would certainly have been singular. A Latin translation of the "True Intellectual System" by J. L. Mosheim, a professor and eventually chancellor of the University of Göttingen, was published at Jena in 1733, and a second edition at Leyden forty years later; to the latter publication attention was called in Nicolaï's "Allgemeine deutsche Bibliothek" of the same year. But, as I have said, Kant was capable of ignoring to an extraordinary degree — or, it may be, of forgetting — a large part of the philosophical literature of his time. If he had read and remembered Cudworth, or any other writer of the same school, he could hardly have flattered himself so complacently as he did upon the entire novelty of his "Copernican revolution."

II

The doctrine of the ideality of the world of objects in space and time rests, in Kant's system, upon two supports of dissimilar character and unequal strength. In the "Transcendental Æsthetic" it is a direct inference from the theory that our notions of space and time constitute pure percepts of which the mind is in possession *a priori*; from the epistemological affirmation of the apriority of our ideas of these two elements of the world of our sensible experience, is immediately deduced the metaphysical negation of the extra-mental reality of that world, so far, at least, as its spatial and temporal contents are concerned. But even supposing the arguments offered for the existence of space and time as *a priori* percepts to be conclusive — a point which it would be out of place to discuss here — the transition from apriority to ideality is manifestly something less than coercive. For the transition gets its sole sanction from the law of parsimony; which can hardly be regarded as an absolutely necessary law of thought. Why should not space or time be *both* an idea with which our mind is furnished *a priori*, and also a real character of the objective universe of *Dinge-an-sich*? In the "Æsthetic" Kant certainly is constantly guilty of the paralogism of translating the proposition, "Space is the subjective form of the perception

of phenomena of the external senses" into the proposition "Space is *nothing but* the subjective form of the perception of the phenomena of the external senses." To assert dogmatically the existence of space on both sides of the Kantian antithesis of thought and thing would perhaps be to multiply entities beyond necessity. But the proof that such an hypothesis is not necessary is not equivalent to a proof that it is false or impossible or absurd. After all of Kant's reasoning upon this subject in the earlier part of the "Kritik" one is left with a fairly open option between two perfectly conceivable hypotheses, namely: Space and time are exclusively subjective forms; or, Space and time are at once subjective forms and objective realities. The latter hypothesis is the less simple of the two, it is less in conformity with the maxim known as "Ockham's razor"; but on the other hand, it seems more natural and more congenial to the human intellect. Consequently, though admitting the validity of every one of Kant's reasonings in the "Transcendental Æsthetic," a fair observer of the situation could hardly say more than that, at the end of that part of the discussion, the conflict between critical idealism and physical realism had issued in a draw.

But in the "Transcendental Antithetic" Kant brings forward an argument for his sort of idealism that has much greater pretensions to compulsiveness and conclusiveness. In the first and second

antinomies and the "critical solution of the conflict of reason with itself" in those cosmological problems, he undertakes to show that the assertion of the objective reality of the spatial and temporal world is, not simply superfluous, but absurd and self-contradictory. For — as the familiar argument runs — so long as we think of space and time as really existing things we can, with perfect logic, prove either to be both infinite and finite in extent, both infinitely divided and incapable of infinite division. For the realist there is no escape from this paradox. Only transcendental idealism can make clear at once the origin and the solution of this apparent self-contradiction and self-stultification of the human understanding. "If we regard the two statements that the world is infinite in extension, and that the world is finite in extension, as contradictory opposites, we assume that the world is a thing in itself;" and from this assumption the whole absurdity arises. "But if we remove this supposition, or transcendental illusion, and deny that the world is a thing in itself, then the contradictory opposition of the two statements becomes purely dialectical, and as the world does not exist by itself (independently of the regressive series of my representations), it exists neither as a whole *by itself infinite*, nor as a whole *by itself finite*." In short, "the antinomy of pure reason with regard to its cosmological ideas is removed by showing that it is . . . an illusion produced by our apply-

ing the idea of absolute totality, which exists only as a condition of things by themselves, to phenomena, which exist in our representation only. . . . We may, however, derive from that antinomy a true . . . advantage, namely, by proving through it indirectly the transcendental ideality of phenomena, in case anyone should not have been satisfied by the direct proof given in the 'Transcendental Æsthetic.' The proof would consist in the following dilemma: If the world is a whole existing by itself, it is either finite or infinite. Now the former as well as the latter proposition is false, as has been shown by the proofs given in the antithesis on one and in the thesis on the other side. It is false, therefore, that the world is a whole existing by itself. Hence it follows that phenomena *überhaupt* are nothing outside our representations." This argument Kant — who never recognized the obvious limitations of the arguments in the "Transcendental Æsthetic" — advances as a subsidiary rather than as the main proof for his transcendental idealism. But it is apparent, from what has already been said, that it is really the only argument that has any claim to be regarded as commensurate with the thing to be proven. The other leg of Kant's reasoning, so to say, is visibly too short to reach up to the conclusion that it is designed to support.

Now, just this argument from the antinomies respecting the infinity and infinite divisibility of space to an idealistic conclusion, had been clearly,

and a good deal more simply, set forth by Arthur Collier in his "Clavis Universalis" (1713). As that remarkable work of the earliest¹ English idealist is less familiar and less accessible than it should be, I reproduce with some fulness the passages in which Collier anticipates Kant.²

The "third argument" in the "Clavis" for the ideality of the external world is as follows: "An external world whose extension is absolute, that is, not relatively depending on any faculty of perception, has (in my opinion) such a repugnancy in its extension as actually destroys the being of the subject-world. The repugnancy is this, that it is, or must be, both finite and infinite. Accordingly, then, I argue thus: That which is both finite and infinite in extent is absolutely non-existent, or there is, or can be, no such world; or thus, an ex-

¹ Berkeley's "Principles of Human Knowledge" was published in 1710. But an earlier draft of Collier's argument has been found, dating from 1708 (see Leslie Stephen, *s. v.*, in "Dictionary of National Biography"); and Collier himself speaks of having waited ten years before publishing his new theories. There appears to be no evidence of Berkeley's having hit upon his doctrine before 1705. If our histories of philosophy were as solicitous to be historical as they are to be philosophical, the name of Collier would be coupled with that of Berkeley as constantly and closely as is the name of Leibniz with that of Newton in the history of mathematics, the name of Wallace with that of Darwin in the history of biology, the name of Adams with that of Leverrier in the history of planetary astronomy. As a matter of fact, in Windelband's "History of Philosophy" the date of Collier's book is given wrongly (English tr., p. 471), and the simultaneity of the two "discoveries" of idealism is not pointed out; in Ueberweg Collier is incorrectly said to have been influenced by Berkeley; and in Höffding there is to be found no mention of Collier at all.

² Citations are from the edition of the "Clavis Universalis" in Parr's "Metaphysical Tracts by English Philosophers of the Eighteenth Century," London, 1837.

tent or expansion which is both finite and infinite is neither finite nor infinite, that is, is no expansion at all. But this is the case of an external expansion, *ergo*, there is, or can be, no such expansion."

Collier then dilates upon the self-evidence of the two essential premises of this reasoning, and continues: "As to the form and manner of this argument, it has first evidently this to plead for itself, that there is nothing in its conclusion but what is in the premises; which shews it to be no fallacy but a just and legal argument. And also this, secondly, that it is exactly parallel with several arguments which I could name, allowed by all to be good and perfectly demonstrative. As for instance, suppose a man should advance the notion of a triangular square. Or suppose two persons contending about the attributes of this strange idea: one arguing from the idea of triangle, that it has but three angles; and the other contending that it must have four, from the idea of a square; what could any reasonable stander-by conclude from this, but that the thing they are disputing about is nothing at all, even an impossibility or contradiction? Nay, the disputants themselves must needs close in with this manner of arguing, and that on two accounts.

"First, in that this manner of arguing accommodates the difference between them, and salves the honor of both. For by this, both appear to be in the right in the precise points they are con-

tending for; and wrong only in something which they are both equally concerned for, viz., the supposition of the being of a triangular square, which is the thing supposed by consent between them. But chiefly, secondly, in that the person who argues in this manner must be compelled to have the law of reason on his side, and may compel them, on their own principles, to assent to his conclusion. This is done by granting to each party his point, namely, that a triangular square is both triangular and quadrangular. This done, they have nothing to do but to answer each other's arguments, which it is here supposed they cannot do. By this, therefore, each grants the other to be in the right. So that for a stander-by to grant both to be in the right is, in this case, a demonstration that they are both in the wrong; or in other words, that the thing they are disputing about is nothing at all. I have mentioned this *possible*, rather than any *actual*, instance of this kind, because I would give an instance wherein I may be sure to have every one on my side. For certainly no one can doubt whether this be a good argument or not:

“A figure which is both triangular and quadrangular is not at all.

But this is the case of a triangular square.

Ergo, there is no such figure.”

Precisely parallel to this, then, Collier observes, is the argument concerning the external world, as thus:

“A world which is both finite and infinite is not at all.

But this is the case of an external world.

Ergo, there is no such world.”

Similar is Collier’s “fourth argument.” “From the *maximum* I come to the *minimum naturale*; or to the question about the divisibility of matter, quantity, or extension. And here I affirm in like manner as before, that external matter is both finitely and infinitely divisible; and, consequently, that there is no such thing as external matter.”

This idealism of Collier’s — all of the arguments for which are more to the point than any of Kant’s except those which the “*Kritik der reinen Vernunft*” has in common with the “*Clavis Universalis*” — is, he is careful to point out, not to be understood as a denial of the empirical reality or even of the phenomenal externality of that general and collective object of sense, a natural world. “Let the meanest of my readers be my witness, that I have been so far from doubting of anything of this that I have even contended on all occasions that nothing is, or can be, more evident than the *existence* of bodies, or of a *sensible* world. . . . Not the *existence* but the *extra-existence* of the sensible world is the point I have been arguing against. And that, not a natural, *supposed* to be a *sensible*, but an *external* world, *as such*, is impossible.”¹

¹ M. Lyon has pointed out (more briefly) the similarity between these sections of the “*Clavis Universalis*” and the Kantian antinomies (*op. cit.*, pp. 262, 263); but by others the point appears to have been usually ignored.

The same general line of argument in behalf of idealism was simultaneously occurring to the mind of Berkeley; it is by him expressed in §§ 47, 123–134 of the “Principles of Human Knowledge.” But Berkeley is far from bringing out the essential point and the precise logical character of the argument from the antinomies so clearly and unmistakably as does Collier; and the form of his reasoning resembles that of Kant much less closely. The paradoxes about infinite extension and infinite divisibility are, in themselves, of course, a very ancient heritage of European philosophy, going back at all events to Zeno of Elea. But Collier appears to have been the first modern to whom it occurred to use them as a decisive argument against physical realism in precisely the Kantian manner. The question here again naturally suggests itself, whether Kant can have consciously or unconsciously derived the suggestion of his own antinomic reasoning for the transcendental ideality of time and space from the English idealist. That Kant should have been acquainted with the “Clavis Universalis” is by no means impossible, since a German translation of it, together with Berkeley’s “Dialogues,” was brought out in 1756 by C. E. Eschenbach, a physician of contemporary celebrity, then professor of mathematics, and later of anatomy, at Rostock. If Kant failed to improve this opportunity — he had, of course, little or no English — to become better acquainted with the much-dis-

cussed reasonings of these English speculators, he certainly fell somewhat short of his professional obligations. But the probability is against his having received any influence or suggestion from Collier; for one thing, it apparently was not until the year 1769 that (in the words of Adickes¹) "the problem of the antinomies, and his solution of that problem, brought about the change in Kant's views concerning space and time." We have here, probably, not a case of borrowing, but merely one of anticipation.²

¹ In his "Kant-Studien," p. 122.

² Kant might also have learned these ideas nearer home. In the assertion of the ideality of space he had, of course, several precursors in Germany. Leibniz had explicitly denied the existence of space as a real thing — as anything more than a "confused" representation of the mere relation of co-existence between unextended entities. Maupertuis, President of the Berlin Academy of Sciences, had maintained (in his *Lettres*, before 1752, German translation, 1753) that "*l'étendue n'est rien de plus qu'un phénomène*"; and before the middle of the century the doctrine had become so much of a commonplace in Germany that Euler thought it necessary to devote one of his communications to the Academy to the refutation of those metaphysicians who asserted that "*les idées de l'espace et du temps n'ont aucune réalité*" and that these ideas "*n'existent que dans notre entendement*" (*Hist. de l'Acad. Roy. des Sciences*, Berlin, 1748, pp. 324–333). But the reader of Kant alone would be likely to suppose this doctrine to be a peculiar and original discovery of the Königsberger himself. Yet even in the antinomic argument for it he had German as well as English predecessors — though none come so close as Collier to Kant's own way of putting it. Leibniz had repeatedly urged that the only escape from the difficulties about infinite divisibility lay in the recognition of the phenomenality of space; and Maupertuis had, as one evidence of the truth of his contention, pointed to "the great embarrassments into which we fall, when we attempt to carry extension out to infinity, or to decompose it into its ultimate elements."

III

It is well known that out of the conceptions and the dialectic implicit in Kant's theory of knowledge there was presently evolved a new type of speculative metaphysics and theology, which, in several forms, has had especial vogue and influence in England and America. Its most general and distinguishing characteristic is that it finds the basis for an idealistic and (more or less frankly) monistic rational theology directly in the nature and presuppositions of knowledge as such; it rests its argument for the existence of God, or an Absolute Mind, exclusively upon epistemological considerations of the Kantian type. By a species of reasoning *a fortiori*, it concludes that since, as Kant had insisted, the world of experience as a coherent system of rationally interrelated objects is possible for me only in so far as its content subsists and is categorized within the unity of *my* mind — which provides the synthetizing system of spatial, temporal, and other relations but is itself something more than a term of those relations — so the whole of reality, including all finite minds, can be conceived only as subsisting within the unity of a single, all-comprehending, self-determining, and completely rational Eternal Mind or Absolute Experience. Now, a mode of theological reasoning and a type of theological conclusion pretty closely analogous to this is characteristic of the philosophy of

the Cambridge and Oxford Platonists of the seventeenth century. It appears, as it does in different English metaphysicians of the neo-Kantian school, with varying degrees of definiteness, with unequal degrees of frankness in regard to the monistic or pantheistic tendency of it, and with different ways of carrying through the one general sort of dialectic common to the whole group. It is, in fact, possible to find fairly exact (though, of course, relatively crude) counterparts to three distinguishable varieties of latter-day Kantian metaphysics — the varieties, namely, represented by Green, Royce, and Bradley — in three of our Platonists, respectively, Cudworth, Norris, and Collier.

1. Readers of Thomas Hill Green have generally found his language concerning the precise ontological relations of the Eternal Consciousness to finite minds somewhat obscure and elusive; but have found him clear, at all events, in insisting that even our human cognition directly presupposes, and that its possibility becomes fully conceivable only through, the mediation of an Eternal Consciousness in whose nature and whose knowledge we (just because we are capable of a mode of insight transcending the temporal and contingent flux of sense-presentations) somehow participate. Cudworth seems to me to be clear and to be elusive upon substantially the same points. "Human knowledge and understanding itself," he says (resuming the epistemological reasoning cited earlier

in this paper), "is not the mere image and creature of singular bodies only; and so derivative and ectypal from them and in order of nature junior to them, but, as it were, hovering aloft over the corporeal universe, it is a thing independent upon singular bodies, or proleptical to them, and in order of nature before them. But what account can we then possibly give of knowledge and understanding, their nature and original? since there must be νοητόν, that which is intelligible, in order of nature before νόησις, or intellection. *Certainly, no other than this, that the first original of knowledge is that of a perfect being, comprehending . . . the possibilities of all things; their ideas with their several relations to one another; all necessary and immutable truths. Here, therefore, is a knowledge before the world and all sensible things, that was archetypal and paradigmatical to the same. Of which one perfect mind and knowledge all other imperfect minds (being derived from it), have a certain participation.*"¹ "It is evident that there can be but one only original mind, or no more than one understanding being self-existent; all other minds whatsoever partaking of one original mind; and being, as it were, stamped with the impression or signature of one and the same seal. From whence it cometh to pass that all minds, in the several places and ages of the world, have ideas or notions of things exactly alike, and truths indivisibly the same. *Truths are not multiplied by the diversity of*

¹ Cudworth, *op. cit.*, p. 406.

the minds that apprehend them; because they are all but ectypal participations of one and the same original mind and truth. As the same face may be reflected in several glasses; and the image of the same sun may be in a thousand eyes at once beholding it; and one and the same voice may be in a thousand ears listening to it; so when innumerable created minds have the same ideas of things, and understand the same truths, it is but one and the same eternal light that is reflected in them all ('that light which enlighteneth every man that cometh into the world'); or the same voice of that one everlasting Word, that is never silent, re-echoed by them. . . . We conclude therefore that from the nature of mind and knowledge it is demonstrable that there can be but one original and self-existent mind, or understanding being, from which all other minds were derived."¹

Recurrent, similarly, in the writings of the Cambridge school is the observation that this ultimate Knower, this archetypal and perfect Mind, must transcend the ordinary duality of thought and thing, must be at once subject and object of thought, by existing for itself as its own object. This principle of Platonistic theology, which goes back to Plotinus, if not, indeed, to Aristotle, is, as everyone knows, another of the commonplaces of the philosophy of those recent English schools whose lineage is usually traced through Hegel back to Kant.

¹ Cudworth, *op. cit.*, pp. 415, 416.

2. In the second part of a remarkable early work of Professor Royce's, "The Religious Aspect of Philosophy," there is set forth an interesting variant of the general neo-Kantian or epistemological type of argument for the existence of God. This argument undertakes to show that the very admission of the distinction between truth and error in judgments — an admission to which even the most determined sceptic stands committed — directly implies the affirmation of the existence of an objective and eternal standard of truth to which all judgments by their very nature aim to conform; and that this standard can be intelligibly conceived only if it be represented as an all-knowing and eternal Mind, which possesses and perfectly apprehends at once the judgment and the "reality," or the truth at which the judgment aims. The skeleton of an epistemological argument for theism which assuredly belongs to the same *genus*, though it is far removed from the dialectical subtlety and the felicitous expression of Professor Royce's reasoning, is to be found in John Norris's "Metaphysical Essay towards the Demonstration of a God from the steady and immutable Nature of Truth"¹ (1687). To Norris himself his line of argument seemed an essentially new mode of proof. "Whether," he writes, "this procedure of mine be entirely new or no, 't is not possible (without examining all the books in the world) absolutely to

¹ Contained in Norris's "Collection of Miscellanies," edition of 1717, pp. 144-152.

determine. This much I believe I may venture to say, that 't is nowhere universally received, nor by any that I know of, industriously and professedly managed; and that, lastly, 't is as new as the matter will now afford, and consequently as any man in reason ought to expect." The argument, somewhat condensed, runs thus: Knowledge is "truth of the subject," and presupposes "truth of the object"; without the latter "there can be no such thing as knowledge." Now, truth of the object, in the sense in which it is here used, consists in "certain habitudes or relations of things towards one another, whether affirmatively or negatively." Of these relations, "some are steady, immutable, that never were made by any understanding or will, nor can ever be unmade or null'd by them. . . . Now, 't is a proposition of necessary and eternal truth, that there must be ever such a thing as truth, or that something must be true; for let it be affirmed or denied, truth thrusts in upon us either way. And so, secondly, there are many particular propositions of eternal and unchangeable verity, as in Logic, . . . Physics, . . . Metaphysics, . . . Mathematics. . . . These and such like are standing and irrepeatable truths, . . . and such as all intellectual operations do not make but presuppose; it being as much against the nature of understanding to make that truth which it speculates, as 't is against the nature of the eye to create that light by which it sees." Now since the simple es-

sences to which these eternal relations belong must, accordingly, somewhere and somehow exist, and in a corresponding eternal manner, and since they can be seen not to do so "in their natural subsistences, it follows that they must be eternal in their ideal subsistences or realities. For there are but two conceivable ways how anything may be supposed to subsist, either naturally or ideally, either out of all understanding or within some understanding." So, "if the simple essences of things do exist eternally, but not out of all understanding, it remains that they must have their existence in some understanding. Without which, indeed, it is not possible to conceive how they should have any such existence." It follows, then, "that there is a mind or understanding eternally existing which is omniscient and . . . universally representative of all other beings" — which "can be no other than that eternal mind which we call God." Norris in concluding offers a distinction whereby he may obviate a certain difficulty in this reasoning — one that, as the ingenious reader will easily remark, attaches, in a slightly different form to more modern versions of the argument. "Whereas in the third section [of Norris's essay] it was asserted that the nature of truth is steady and immutable, and such as has no precarious existence or arbitrary dependence upon any understanding whatever; and yet in the fifth section 't is affirmed that it owes its existence to some mind or other; lest one part of

this meditation be thought to clash against another, I thought it requisite to adjust this seeming contradiction. For the clearing of which we must be beholding to that distinction of a Platonic author, of the divine mind into *νοῦς νοερός* and *νοῦς νοητός*, conceptive and exhibitivē. Truth does by no means depend upon any mind as conceptive, whether human or divine, but is supposed by it. But upon mind as exhibitivē it may and does ultimately depend; *so that if there were no God of eternal mind, there could be no truth.*"

Imperfectly worked out though this argument of Norris's is, limited as it is by its Platonic antecedents, it seems to me palpably to contain the germinal principle of the reasoning which Professor Royce has summed up in these words: "All reality must be present to the Unity of the Infinite Thought. For all reality is reality because true judgments can be made about it. And all reality, for the same reason, can be the object of false judgments. Therefore . . . all things actual and possible exist as they exist and are known for what they are, in and to the absolute thought." For this "Infinite Actuality is absolutely necessary to constitute the relation of truth and error. Without it there is no truth or error possible. . . . Our thought needs the Infinite Thought in order that it may get, through this infinite judge, the privilege of being so much as even an error." ¹

¹ Royce, "The Religious Aspect of Philosophy," 1897, pp. 433, 427.

The broadest difference between the earlier and the contemporary dialectician is that the former (except in his sweeping final sentence) limits his argument to establishing the necessity of the presence of the *eternal* truths to the Divine Mind. But this was only because he failed to see (what a Platonist, of all men, might be expected to insist upon) that the *truth* of all propositions, contingent and empirical as well as "eternal" and axiomatic ones, may be regarded as an eternal or non-temporal reality, though the matters referred to by the former sort of propositions be not so.

3. In Collier's "A Specimen of True Philosophy" (1730) one finds a surprisingly neat summary of the post-Kantian argument for absolute or monistic idealism, and at the same time an example of the eventual transformation of the Absolute of such idealism into an essentially incomprehensible type of entity, in which the relations and distinctions characteristic of human, discursive thinking are "transmuted" into something, one knows not what. It is because of the latter trait of his ontology that I have likened Collier to Mr. Bradley.¹ The passage is as follows: "When I here affirm on the foundation of what I have elsewhere proved, that the visible or material world, which I, for instance, see, exists *in me*, or in my particular mind, I mean only to say that my mind is the im-

¹ "A Specimen of True Philosophy," reprinted in Parr's "Metaphysical Tracts," pp. 116-121.

mediate Ἀρχή or substance of the object perceived; or that the visible world which I see exists *immediately* in my particular soul. And, therefore, where it is said that heaven and earth, or the said visible world, exists in the Son of God, the meaning can be no other than this, that the said visible world exists *mediately* or *ultimately* in the same divine Person; which is the same again, as if it had been said that, as the visible world exists *immediately* in any human or created mind, so the said mind itself exists *immediately* in the Son of God. . . . Here, then, we have a true picture given us of all creaturely existence; that it is not existence simply, but only inexistence. . . . A creature, as such, is not capable of being made, that is, simply of existing, but only of inexisting. . . . In a word, we have seen that the world or species of matter exists in the world or species called mind or spirit; and that this last exists in a third, as essentially different from the last as it is from the first; notwithstanding that he has condescended to be called our brother." But "the nearer any being or substance stands related by inexistence to the first substance of all, the Ἀρχή of the whole creation, so much the more perfect or excellent it is." Thus the human mind is more nearly representative of the Absolute Reality in which it is included than is the material universe, which is included wholly in mind or conscious experience; but the Absolute and all-inclusive whole cannot be supposed to have the

distinguishing peculiarities and limitations of a finite and discursive mind.

One might go far before finding a better summary than is prophetically given in this writing of 1730, of the outlines and main vicissitudes of the whole history of post-Kantian idealism. Here is the *a fortiori* inference from the necessity of conceiving all objects of experience as subsisting in, and as determined by, the synthetic unity of the individual human mind, to the necessity of conceiving *all* minds and their contents as correspondingly included in the unity of one Universal Mind; here is the effort to discriminate within this scheme comparative "degrees of truth and reality"; and here, not less, is the fatal tendency of this sort of epistemological idealistic monism to evanescence into an ultimate metaphysical scepticism, to an hypostasis of an essentially unknowable substance; to, in short, the "disappearance of reality." Collier gives in a few words a proleptic outline sketch of the future development of this entire type of philosophical tendency among the successors of Kant; he also gives us what is perhaps a warning hint of its ultimate and unhappy historic destiny.

In general, however, what one finds, on comparing Kant and his successors with these earlier speculators, is not identity of doctrine, but the sort of resemblance which an ancestor might be expected to bear to a descendant. It would perhaps be too much to call these English Platonists Kantians;

but it is quite accurate to call Kant the continuer of the modern Platonic tradition of which these English philosophers were the Early Fathers. It will appear to some no great demerit in these seventeenth-century thinkers that they plainly exhibit, and even proudly acknowledge, their own intellectual ancestry. Kant, on the contrary, usually has very much the air of a philosophical *nouveau riche*, of a self-made theorist. In reality, his originality consists chiefly in the conjunction in his theoretical philosophy of two tendencies previously separate; both of these had been conspicuously (though not exclusively) represented before his time in British epistemology and metaphysics. In his "Copernican revolution," his "transcendental" idealism, his apriorism, he is merely the elaborator and systematizer of the general doctrine of the English Platonists; in his sceptical attitude towards that which "transcends possible experience" and in his feeling that the first task of philosophy is to set bounds to the aspirations of human knowledge, he is the disciple of Locke and Hume. The work of his own followers has largely consisted in striking out the second of these two elements in his system, and in developing out of the first conclusions of a type long since familiar to the earlier and English representatives of rationalistic idealism.

A CRITIQUE OF KANT'S ETHICS

A CRITIQUE OF KANT'S ETHICS¹

BY FELIX ADLER

IN the preface to the second edition of the "Kritik of Pure Reason" Kant says: "It behooved me to destroy knowledge (that is, the presumed knowledge of transcendental truths) in order to make way for belief." His moral belief was founded on his ethical theory. This theory it is the purpose of my paper to subject to criticism.

The task of honest criticism is difficult. The popular adage tells us that it is hard to see ourselves as others see us. It is no less hard to see another in the manner in which he sees himself, to enter into his mental world, to put one's self mentally in his place, to see the objects of his thought in the same illumination in which they present themselves to his inner eye. Yet, without thus stripping off one's own personality, as it were, without some such preliminary act of self-renunciation,

¹ The author of this contribution found to his especial regret that his engagements forbade his preparing a paper expressly for the present volume. Desiring however to share in the expression of the feeling it embodies he welcomed the Editors' suggestion that he should reprint for the first time (without revision), and house permanently here a paper contributed to *Mind*, N. S., Vol. XI, No. 42, p. 162. Acknowledgments are due to The Mind Association for their consent to its republication. — Eds.

without a willingness to learn from another, nay, almost, for the time being, to become that other, the business of the critic is hopeless from the first. Nor ought these remarks to appear superfluous to anyone who remembers the fate encountered by the Kantian philosophy at the hands of many of his interpreters. The greatness of this extraordinary thinker has indeed been acknowledged by all. But, after some preliminary tributes to his genius, the attempt has often been made to overthrow his credit by triumphantly refuting opinions which he never held, and to expound his system, not in the light of doctrines which he himself taught, and for which he was willing to stand sponsor, but according to what, in the opinion of his expositors, he ought to have taught, or would have if he had as clearly known his own mind as they professed to know it, or if he had foreseen the implications of his thought which they, his successors, had succeeded in explicating. In this way it has come about that some of the most authoritative accounts of the Kantian philosophy in the English language are so infiltrated with the elements of those later systems, which Kant himself did not know and which in their first beginnings he repudiated, that his actual teachings in the minds of many have become obscured, and a kind of bastard Kantianism has come into vogue, reminding one of the spurious Aristotelianism that was current in the schools of the Middle Ages.

I mention these facts at the outset as a warning intended not so much for my readers as for myself. I, too, am about to undertake the hazardous task of criticism. It is well to remind one's self of the pitfalls that beset such an undertaking.

To criticise, one must understand. To understand, one must sympathize, nay, one ought, in the first instance, to forget criticism and be willing to take the humble attitude of a learner. The entire ethical system of Kant depends on the idea of freedom — not on freedom itself, but on the idea of freedom. What meaning does he attach to this idea? How does it originate? How does he seek to legitimate it? How does he endeavor to reconcile it with the idea of necessity? These questions we shall now take up.

The passages which it concerns us to study and to keep before us in their *ensemble*, as each in some degree supplements the others, are: the chapter on Freedom in the "Kritik of the Pure Reason," the corresponding chapter in the "Kritik of the Practical Reason," a chapter on this subject in the "Prolegomena," and, in addition, the observations contained in Kant's "Philosophical Diary," edited by Erdmann, and published in 1884: "Observations on Freedom," numbers 1511 to 1552 inclusive. I shall make the attempt to state the main points of Kant's argument in a series of propositions.

First, a distinction is to be drawn between the fact of experience, the inference from this fact,

and the argument designed to furnish a metaphysical basis for this inference. The fact of experience is the occurrence in us of judgments implying absolute obligation. I ought to act in such and such a way, irrespective of my inclinations, and even contrary to them, without regard to the force of obstructive habits, heredity, education, environment, etc.; something it is absolutely right for me to do. A merely hypothetical judgment affirms that certain means ought to be adopted in case I desire the end. A categorical judgment affirms the existence of an end which I am not at liberty to choose or reject at my good pleasure, but am under obligation to choose. In every other case the word "ought" refers to the means. In the case of moral obligation the word "ought" refers to the end itself as well as to the means. This fact of experience constitutes the starting-point of the Kantian ethics. If we dispute this fact, we part company from him *ab initio*. Let us, however, hold in abeyance any objections that may arise in our minds and pursue the argument further.

The starting-point, then, is the fact, real or assumed, of unconditional obligation. The inference from the fact is what Kant calls practical freedom. Because "thou oughtest," therefore "thou canst." It is of the utmost moment to remember that the freedom of the will, according to Kant, is not a matter of experience. Moral freedom is not for an instant to be confounded

with psychological freedom, the faculty of deliberation or suspended judgment, or the consciousness of self-determination. Freedom, according to Kant, cannot be proved to occur in consciousness at all. It is not itself a fact of experience, but an inference from such a fact. The fact itself is the judgment "thou oughtest." The inference is "thou canst," "thou art free."

In the next place, practical freedom requires for its speculative basis transcendental freedom. If we are, on moral grounds and for purely moral purposes, to regard ourselves as free agents we must be able to justify the idea of freedom in its own right; we must be able to show, at least, that no self-contradiction is involved in assuming it, and especially that it may be held without infringing upon the law of universal causality, which is the foundation of science. Moral liberty may imply affirmations which transcend the domain of science. It must not, however, come into conflict with science in its own field. If we are to accept the doctrine of freedom at all it must be possible to define freedom and necessity in such a way that both may be held conjointly.

It will be of assistance to us, at this point, to recall the decisive contrast in method which marks off from one another Kant and his idealistic successors. The latter started from the metaphysical side in order to construe the world of experience. Kant always sets out from the empirical

side and his metaphysics consists of a series of fundamental principles intended to establish the laws of experience on a secure foundation. The whole of the "Kritik" is orientated toward the exact sciences. The phrase "the possibility of experience," of constant recurrence throughout the "Kritik," means nothing but the possibility of exact scientific knowledge. What seem to the superficial reader mere metaphysical entities, leading an independent existence in the thin upper air of speculation — I mean the chorus of *a prioris*, with the unity of self-consciousness as their Apollo at their head, turn out on closer acquaintance to be the very Lares and Penates of the scientific household, the familiar genii to which every serious investigator pays homage on entering his study or his laboratory. It would doubtless tend to facilitate the understanding of Kant's thought and to strip it of the air of foreignness which is produced by a somewhat pedantic terminology, if the student would always bear in mind the concrete scientific problems, with reference to which the discussions in the "Kritik" are carried on, but which the author, as a rule, does not distinctly mention, in order that the purely abstract character of his argument may be preserved. Thus, for instance, the Transcendental Æsthetic deals with the T and S of mechanical physics, not with the psychological notions of time and space, nor with their genesis. The chapter on the Axioms of Intuition is concerned with the

application of pure mathematics in its complete precision to the objects of experience. The Anticipation of Perception is concerned with the fundamental principle that underlies the conception and the measurement of force. In the discussion of Causality and of Reciprocity or Community it is Newton's laws of motion which the argument keeps in view.¹ In the chapter on the Postulates of Empirical Thinking we are invited to clarify our thought with respect to the scope and limitations of scientific hypotheses. Even when we pass beyond the borders of the Analytic and discuss the ideas of the reason, we have not escaped from the territory of the exact sciences. The idea of God, for instance, in the "Kritik" is justified on the ground of its *scientific usefulness*. It is intended, though capable of being charged later on with a richer meaning, to promote the process of induction so that it may confidently be pushed to its farthest possible limits. The ideas of the homogeneity, the specification and the affinity of nature are gathered together, as it were, in a kind of mental symbol, with the *ens realissimum*, or God, as their *substratum*. We are asked to look upon nature as if it were the work of a rational being, not because we have the right to affirm the existence of such a being, but that we may the better succeed in discovering such rational connections in nature as actually subsist. We are asked to regard it as a coherent

¹ See Hermann Cohen's "Kants Theorie der Erfahrung."

whole in order that we may make our interpretation of it as coherent as possible.

The T and S of mechanical physics, Newton's laws of motion, the scope of scientific hypotheses, the assumptions that underlie the process of induction, these and such as these, and the problems which they involve are the subjects with which the "Kritik" is concerned. If Kant had entitled his book "A Philosophical Inquiry into the Fundamental Principles of the Exact Sciences," such a title would have covered the positive side of the "Kritik," and possibly might have served to prevent much subsequent misinterpretation.

Kant — let us hold fast to this one thought — intends by his entire system to account for the element of *certainty* in experience. He distinguishes between knowledge, loosely so called, and knowledge in the strict sense, between perceptive judgments and judgments of experience or scientific judgments. He asks, Whence the difference? Or, to put it in another way, it is the distinction between the expectation of future happenings, founded on previous association, and the prediction of future happenings, founded on scientific certainty, that constitutes the pivot on which the "Kritik of Pure Reason" hinges. Does scientific prediction merely differ in degree from that expectation which is encouraged by habitual sequence? Is the difference one merely of degree? Kant asserts that it is a difference in kind. There are *a priori* in a

certain part of our knowledge, and this part he calls experience. And what are these *a priori*? They are the factors of certainty. The substitution of the term "factors of certainty" for the term *a priori* might be a gain. The term *a priori* suggests independent existence which Kant, far from asserting, constantly and strenuously denies. It suggests a pretended insight into the aboriginal constitution of the mind, into the germinal principles out of which intelligence has developed. And this claim of pretended insight, I take it, was equally foreign to Kant's conception. At any rate, the validity of his theory of knowledge does not depend on the admittance of any such claim. The term *a priori* suggests chronological antecedence and, in this respect, it is particularly misleading. The Kantian *a priori* is discovered not in its origin, but in its operation. The *a priori* in the Kantian sense may be synchronous with its product, may be born at the very moment when it yields its first effect. If a new science were to arise, containing some new element of certainty heretofore unmanifested, we should be compelled to formulate a new variety of the so-called *a priori*, and we should be justified by the spirit, if not by the letter, of Kant's teachings in so doing. The doctrine of the *a priori*, often confused as it is with the doctrine of innate ideas and of intuition, is really as unlike these doctrines as it is possible to be. The thinker of the Kantian type does not attempt to discover a men-

tal content which is common to the Fiji Islander and to Lord Kelvin, does not attempt to acquaint us with an *a priori* which consoled the cave man in his moments of meditation. Nor does he speak of truths which are apprehended in a flash of intuition, apart from experience. The thinker who follows along the Kantian lines lies in wait, watching how the human mind behaves when it exercises its powers. He observes how the mind reveals itself in the exercise of its powers, and these moments of self-revelation he fixes on his philosophic camera. He watches to see what harvest of assured knowledge the soil of the human mind produces under the rarest and most favorable conditions, and from this crop he makes his inference as to the seed. But as to the origin of the seed itself, as to how it came to be planted in the human mind, — into such questions as these he forbears to inquire, and the whole question of genetic development he leaves to the psychologist, to deal with as he may see fit.

I have said that Kant traverses the field of experience and that wherever he finds an element of certainty he raises the question as to the factor which produces it. And this brings us back, after a somewhat lengthy but, I trust, not irrelevant digression, to the subject in hand. In the realm of ethics, too, he lights upon an element of certainty, namely, that which is implied in the Categorical Imperative, in the idea that there are lines of con-

duct which ought to be followed at all times and by all persons. There is, indeed, a capital difference between the certainties of science and those of ethics. The former are verified in experience while the latter are not capable of such verification. It cannot be proved, Kant tells us, that a single human being has ever obeyed the Categorical Imperative, that a single human being has ever pursued the line of conduct which yet he must admit to be universally binding. There is a gap between assent and performance of which it cannot be shown that it has been filled, even in a single instance. In ethics, therefore, we do not deal with any demonstrable lawfulness or certainty of conduct, but with the idea of such certainty, of such lawfulness, and it is the task of ethical philosophy, according to Kant, to account for this idea.

To repeat what was said above — “thou oughtest, therefore thou canst,” is the starting-point. To say “thou canst” is to assert practical freedom; but practical freedom presupposes transcendental freedom. To an examination of the latter we shall now pass on. Transcendental freedom is, putting the gist of Kant’s thought into a single sentence, the timeless origination of effects that appear in time. In Observation 1543 (Kant’s “Reflexionen”) we read: “Transcendental freedom (of any substance whatsoever) is absolute spontaneity in action. Practical freedom is the faculty of acting on the sole impetus of reason.” Obser-

vation 1541: "Freedom is the independence of causality from the conditions of space and time," — the causality of a thing regarded as a thing *per se*. Observation 1533: "Freedom is the faculty of a cause to determine itself to action, untrammelled by sense conditions." Observation 1545: "We cannot demonstrate freedom *a posteriori*. . . . We cannot cognize the possibility of freedom *a priori*, for the possibility of an original ground of action, which is not determined by some other, is wholly inconceivable. Hence, we cannot theoretically prove freedom at all, but only demonstrate it as a necessary practical hypothesis." The gist of these quotations may be put as follows: Transcendental freedom is the pure self-activity of reason, or the application to one substance of a general notion which, in the case of transcendental freedom, embraces all substances. Freedom is inexplicable and inconceivable. We cannot prove its actuality nor even its possibility. For, what is meant by an act of spontaneous volition or by a substance which, without any determining influence from beyond its sphere, produces the motives upon which it acts, we are incapable of understanding. The idea of freedom takes us outside the phenomenal world into the region of things *per se*, or of noumena. Freedom, be it distinctly noted, is vested in the noumena. What is called psychological freedom is a transparent piece of self-deception. Self-determination, which has sometimes been

presented as a substitute for freedom, — namely, the fact that, after our character has been formed by heredity, education, environment, in short, by the confluence of innumerable extraneous influences, we then act along the lines of this, our character — such self-determination Kant dismisses with a single word of infinite contempt. “The freedom of a mechanical turnspit” he calls it. No; genuine freedom he demands, self-activity of the reason — a very different thing from self-determination — the rational substance in us acting on its own motion, causing to emerge of its own accord the commanding motives that ought to sway our will. But this freedom, he tells us, occurs behind the scenes. We have no consciousness of it, at least, not any that we can build on. There is an actor in us who never takes off his mask, who never appears on the stage, and of whom, nevertheless, we are to assume that he exists because of certain effects which he produces, from behind, or from within; in short, from the region of the unseen. This actor is our noumenon. Freedom is vested in the noumenon; our freedom is in our noumenon.

But, in this connection, it becomes indispensable to pause and to consider to what we should be committing ourselves if we were to go along with Kant in assuming noumena in general and the noumenon of man in particular, more especially as the degree of reality which belongs to freedom depends on the reality ascribed to the noumenon of which

freedom is a function. Now does Kant say that things *per se* exist? Not at all. He says they must be assumed to exist. The distinction is sharp. At first blush, it looks as if, in contrast to phenomena, which convey merely the appearance of reality, the things *per se* were designed to satisfy our craving for the ultimately real. The world of phenomena is the world of seeming; that of noumena the world of truth. But, in a certain sense, the direct opposite is unquestionably Kant's meaning. The world of phenomena is for us — and, of course, only for us — the world of objective reality. By no other means, according to Kant, can we attain to the knowledge of reality except by subjecting the data of sensation to the synthetic processes of the understanding. Sense data, thus synthetized, he calls objects. They exist. The solar system exists. The fall of a stone is an actual occurrence. The things *per se* do not exist. They are only assumed to exist. According to Kant, the separate rings in the chain of experience and the interconnection of link with link, are real. But the whole chain is not a reality. The notion that the chain can be carried back endlessly, or that it is suspended somewhere, from an aboriginal pier or support, does not correspond to reality. Such a thing as a universe does not exist, except only in idea.

If this be the case, if noumena do not exist, but are only assumed to exist, what profit is there in

assuming them? They have such value as belongs to concepts of limit. Negatively, they serve to warn us that our interpretation of things is not the only possible one, not the final one. We, indeed, can know no other; but we can know that there may be. must be, others. With the sort of material to which we are restricted, namely, the data of sensation, with the sort of mental tools with which we must work, namely, the synthetic processes of the understanding, Kant tells us we may never hope to complete the chain of knowledge. Not only have we not succeeded thus far, but, in the nature of the case, the prospect of complete success is excluded. But in addition, the noumena have certain positive values. They are "dukes of the marches," stationed on the frontier of the kingdom of science to defend it against the incursions of supernaturalism and to extend it without assignable limit, under the stimulus of the idea of totality which, though incapable of realization, is indispensable as a provocative of effort. And, in addition, there are two noumena, the noumenon of God, and the noumenon of man which, in the field of morality and religion, acquire the highest kind of positive, practical value, this value consisting in their being the assumed centres of self-activity, the assumed fountain-heads of that freedom which, in virtue of the Categorical Imperative, according to Kant, we are compelled to postulate. Does this ethical value make them any

the more real? If we keep within the bounds of Kant's thought, I think we must answer in the negative. We must assume that the noumenon of man, for instance, the centre of his self-activity, exists. We are bound to act as if it existed, but we do not know that it exists, and we cannot say it does exist, as we say that light exists; we cannot say that self-activity operates, as we say that the forces of nature operate.

So far off, so impalpable, so, in a certain sense, unreal is this rational noumenon, so little does it enter into competition with the things whereof we know. A high, subtle, abstract, inconceivable, though not therefore unthinkable, somewhat! We are bound to act as if it existed. This is the whole outcome. Whatever certainty belongs to it is in the nature of moral certainty. Whatever life-blood of reality it possesses it borrows from its uses. It is not the ultimate reality. It is an X that stands for the ultimately real. Yet, even to go as far as this, even to admit the noumenon into our scheme of thought at all, as an indispensable auxiliary of moral effort, we are obliged to show, unless our mental household is to be hopelessly divided against itself, that self-activity and mechanical causality can subsist together, that they do not clash, that the order of nature and the order of freedom may obtain in the self-same act.

Let us review, for a moment, the steps we have taken. Unconditional obligation, the one sure fact

and the starting-point. Practical freedom the inference. Transcendental freedom, the presupposition of the latter. Freedom, wholly ruled out as a matter of experience, lodged in the noumenon. This noumenon, this, our transcendental substance, the timeless originator of effects in time, incapable of being proved to exist, but only assumed to do so. Yet the freedom which is thus assumed, inconceivable and inexplicable as it may be, must, at least, be shown to be not incompatible with natural causality. To the task of showing this Kant addresses himself in the famous chapter of the "Kritik," which, as has been said, should be taken in conjunction with his statements in the "Prolegomena," in the "K. P. R." and in the "Reflexions." He is aware of the difficulties of his task and wrestles painfully both with his thought and with the expression of it. I myself do not believe that he has succeeded in solving his problem; but I have been chiefly concerned, thus far, in my interpretation, to make clear the auxiliary nature of his metaphysical concepts, and I trust I have shown that they are quite devoid of that transcendent or mystical meaning with which some believe them to be fraught. In commenting on the subject which we now take up, my principal concern, before I attempt to criticise at all, will still be the same, to arrive at Kant's exact meaning as far as possible, and to demonstrate that it is far less charged with positive metaphysical affirmation than a cursory reading might suggest.

Others have said: determinism or freedom. Kant says: determinism and freedom. The line of his argument is a straight and narrow way, as narrow as a razor's edge. It is easy to miss his drift, as the example of famous expounders sufficiently attests. And yet, we have here reached the critical point of Kant's ethics, and should we fail to obtain light here, we shall have to grope in darkness through all the remainder of our journey. The key-thoughts which express the terms on which the reconciliation between freedom and necessity is attempted to be effected are the following:

(a) If the objects of nature were things *per se* there could only be a single law applicable to them. Since they are appearances there is room for a double law, the law of natural causality applying to the appearances, and the law of causality through freedom applying to the things to which these appearances correspond.

(b) Freedom is the timeless origination of effects in time. The cause is noumenal; the effect phenomenal. This relation is possible because causality is a dynamic relation, and the cause may therefore *differ in kind* from the effect.

(c) The law of freedom is compatible with the law of mechanical causality because freedom is a "cosmological idea," that is to say, because the notion underlying it is the same as that which underlies mechanical causality, only in the former case expanded, magnified, raised to the power of

the infinite. The common notion is that of constancy and necessity. In the case of phenomena, that which happens constantly and necessarily — namely, the invariable occurrence of certain consequents after certain antecedents — is conditioned upon similar dependable relations existing between a series of preceding antecedents and consequents. The mind, however, unable to pursue this chase to the finish, fashions for itself the idea of an unconditional necessity and constancy, that is, of something which happens always and necessarily, just as it does happen, without respect to what precedes or follows. And this is the notion of freedom as Kant entertains it. The point of his argument on behalf of reconciliation is that the idea of constancy and universality in general does not contradict that of constancy and universality in a particular instance. Farther than this he does not attempt to go. He warns us repeatedly that he does not undertake to show how freedom and natural causation may be harmonized, that he does not attempt to show that freedom is actual nor yet to show how it is possible, but only that it is possible, namely, in the sense that the notion of freedom, as of unconditioned necessity and constancy, does not contradict the notion of conditioned necessity and constancy, but rather is an extension of the latter, the latter raised in idea to the power of the infinite. To put the thought in different language, the idea of freedom, while leaving the empirical

nexus untouched, superadds the missing *logical link* between antecedent and consequent. The empirical nexus is a foot-bridge that spans a river. Causality, through freedom, is the steel cable that connects the banks and supports the frail structure that hangs suspended from it. The idea of freedom is that of the complete conditioning of what, in experience, is always incompletely conditioned, and this idea is reached, not by a perfect regressus from which we are precluded, but by our going outside of the time series, being warranted in so doing by the dissimilarity in kind that may subsist between a cause and its effect. (I ought to here say, by way of caution, that Kant does not attempt to efface the distinction between the order of nature and the order of freedom, when he urges upon our attention what is common to both, namely, the notion of constancy and necessity in happenings. Unconditioned self-activity and activity determined by antecedent conditions remain as widely apart as ever. The two have not really been reconciled. Still, if we admit the argument, they are shown to be not irreconcilable. The same act which we know to be determined, when we regard it as lying in the empirical series, we may regard as free, when we consider it as the effect of a deeper, under-working cause. And at this point, it may be well to observe the closeness of connection between the "Kritik of Practical Reason" and the "Kritik of Pure Reason." The

formula of the Categorical Imperative is but the application to conduct of the idea of necessity and universality, that is, of freedom regarded as a cosmological idea.

Let us now proceed to consider how these key-thoughts are applied to the problem of the freedom of the human will. First, a distinction is drawn between the empirical character and the noumenal character. The former is wholly subject to the law of natural necessity; the latter is free. Every act of ours, Kant tells us, is to be referred back for explanation to antecedent conditions. All that part of any human act which is explicable is thus to be explained. If we could completely know the empirical character of a man at any given moment, we should be able to predict all his future actions with as much certainty as we predict an eclipse. Language could not be more explicit than this. The law of natural causality tolerates no exception, and our empirical self, the only self we know, lies wholly within the province of that law. Wherein, then, does freedom consist? In the fact that our empirical self is but the phenomenon of the noumenal self, in the fact that the whole series of our acts is but the manifestation in time of a timeless choice. The noumenon does not enter as an interloper between any antecedent and its consequent. It is the profounder reality of which the whole string of antecedents and consequents is the external apparition.

Further amplification and elucidation, however, are needed. What, we may ask, does Kant mean when he says that a man's empirical character is the phenomenon of his particular noumenon? Empirically, the influences that contribute to form us stretch back far beyond the limits of our individuality. Sixteen grandparents, if we go back only a few generations, and hosts of ancestors back of these, have helped to mould us. Our origins are so ramified as speedily to be lost to view in the general mass of humanity; and humanity itself, in its beginnings, extends backward into the animal world. What, then, does Kant mean when he says that my empirical character is the appearance of my noumenon? The word "character," it seems to me, is to be taken strictly. Only the character is the phenomenon of the noumenon. And what is the character? Briefly, the degree of intensity with which the reason in me resists all those influences upon me that are uncongenial with itself, the degree of effort which the reason puts forth in affirming itself. When Kant, therefore, declares that, if we knew a man's empirical character at any moment, we could predict all his future acts, he includes in the term "character" this aboriginal set of the will. But, if this be so, why does he assert that, nevertheless, every act of ours can be explained in terms of its antecedents, seeing that the set of our will, the degree of intensity with which the reason resists counter influences and

affirms itself is the operation in us of freedom and cannot be explained in terms of antecedent conditions. The answer to this question is that the set of our will, the degree to which we are estranged from or conform to reason, is a wholly unknown quantity, is hidden even from ourselves. Yes, indeed, we should be able to predict a man's future acts if we knew his empirical character. But we never can know his empirical character, at least, not that element in it which stamps it as a character, which is the imprint on it of the rational cause. What we know about other people and even about ourselves is only the objective, outward side of morality, the act, but never, with any degree of certainty, the motive. Self-interest, concern for our reputation, the desire for internal peace may account even for those acts which seem the most virtuous; such as charity to the poor, self-sacrifice, truthfulness, etc. Briefly, the morality of an act does not lie within the range of experience. We may give ourselves and others the benefit of the doubt and assume that they or we have acted from a purely rational motive; but we can never be sure of the fact that they have or that we have. Still less can we be sure of the degree of merit to which we are entitled to lay claim. Our worth is proportional to the degree of effort which the rational nature in us puts forth in the attempt to affirm itself. But it is obvious that if the counter influences, as in the case of the offspring of a dipso-

maniac, are great, even a sturdy effort of the rational nature may produce but meagre objective results; while, on the other hand, if the influences from without are propitious, as in the case of the gently born, even a feeble effort may produce outwardly fair results. The degree of merit, however, is proportioned, not to the result, but to the effort, and this, even in our own case, we cannot estimate.

Of the Imperative alone, "thou oughtest," are we sure, and of the idea of freedom involved in it. Actual freedom is an inference, a postulate. But if the freely operating cause be thus inaccessible and if, at the same time, unlike the noumena of phenomena in general, it is represented as a cause which has intercourse with the phenomenal world, and which injects its influence into the latter, how are we to represent to ourselves this connection between two orders of existence so entirely disparate? I think we shall best comprehend Kant's language if we assume that what he says on this subject is to be understood symbolically. A symbol, in the sense in which Kant employs the term, is a noumenon represented for the nonce as if it were clothed with phenomenal attributes. We know that the garments do not fit. We do not assert that any such being as we have dressed up actually exists. But we require the help of such a figment because it stands for or symbolizes an ultimate truth, which we need to keep before the mind, and of which we cannot in any other way lay hold.

Thus, for instance, the conception of God, as Kant employs it, is symbolic. He does not say that God exists. On the contrary, he has taken the utmost pains to destroy the proofs of his existence. Nor is his reintroduction of the idea of God a glaring self-contradiction, as it is often represented to be. He tells us that we are to think and to act as if such a being existed, for certain practical purposes. He has draped the noumenon in phenomenal attributes. And in the same way, I believe, in the chief passages that relate to the subject which we are now considering, he has invested the noumenon of freedom with phenomenal attributes, with garments that do not fit, with attributes that really contradict its nature. He asks us to pass over the contradiction, to look upon the thing as if it were what he describes it to be, to treat it as the symbol of what we cannot, in its own essence, grasp, in order that we may be able to keep before our minds the fact that there is such a noumenon. Thus, for instance, he represents a rational, timeless cause as acting. But how can we speak of action at all which does not occur in time? What sense can we connect with the words "timeless action"? Never mind, says Kant, we are dealing with a symbol. A noumenon is treated *ad hoc* as if it were a phenomenon. Again, a rational cause, one which is determined solely from within, nevertheless elects in a timeless choice to assert its rational nature imperfectly. The lapses of our

empirical character are represented as due to a noumenal flaw. But how can there be such a flaw? Since reason, *ex hypothesi*, is not determined by anything outside itself but solely by itself, how can it give effect to its nature otherwise than in a perfectly adequate manner? Once more, "Never mind." We are investing a noumenon with phenomenal attributes. We speak of it with a *proviso* "as if." It is only on the assumption of the symbolic significance of those statements of Kant which relate to the commerce of the noumenon of freedom with the phenomenon that his theory can be properly articulated, and the various parts of it so disposed as to avoid clashing with each other.

I have devoted so much of my time to exposition as to leave little room for criticism. But as, in that part of this paper which is devoted to the theory of freedom, my main object has been exposition, I shall not regret this circumstance and shall state my points of criticism very briefly. They are of two kinds: practical and metaphysical. The attempt to formulate at all or to represent, even in symbolic fashion, the relation of the supersensible to the sensible world is ever fraught with grave moral perils. There are two alternative positions between which those who undertake such attempts are sure to oscillate, two horns of a dilemma on either one or the other of which they are certain to be impaled. Either the phenomenal is noumenalized, or the noumenal is phenomenalized; either

the relative, the human, is invested with an absolute character and thus acquires a degree of rigidity which deprives it of life, or the absolute is degraded to the level of the relative and thus loses its absolute character. A result of this nature has attended Kant's undertaking. He tells us that the empirical character is but the unfolding in time of a noumenal choice, taken outside the realm of time. If this be so, then it follows that the hope of moral regeneration is cut off; and on the most obvious grounds of practical morality we must protest. To say that the empirical character is merely the apparition of the noumenal is tantamount to saying that we cannot really become other than what we have been, that we can only, as circumstances favor or inhibit, bring to light that moral self in us which has been and is and will ever be the same. But this is to deny our dearest moral hope. From the standpoint of practical morality, we are bound, on the contrary, to say that we can always transcend our former selves, that we can really become different beings, that our choice is not beyond recall, that a new choice is open to us every day and every hour. The following alternative, it seems to me, so far as Kant is concerned, is not to be evaded. Either he must make the character a rigid thing and introduce noumenal inflexibility into the empirical will; or, if he were to admit the possibility of genuine moral change, he would be constrained to introduce change into the noumenon itself and thus abolish its noumenal character.

The other class of objections is metaphysical.

In the first place, let us state the objections that lie against the Kantian deduction of the possibility of freedom. Admitting that natural causality applies only to phenomena, it follows that another kind of causality, operating over and above or outside of the time series, is thinkable. Thus far we must, I think, assent to Kant's argument. We are bound to remember that the temporal series of antecedents and consequents is a fragment incapable of being extended so as to touch a starting-point or to merge into a final end. Natural and libertarian causality are contradictory only on the assumption that a past eternity has actually elapsed, that the whole series of natural causes exists objectively, independently of our subjective ability to survey it, that it lies like some silent world which has never been visited, like the Pole, which has not been reached, but of which we know, all the same, that it is objectively existent. If the whole series of antecedents be supposed to exist in this fashion, ready to appear to an intelligence capable of winging its flight so far, then, indeed, natural causality precludes any other kind of causality, then determinism swallows up liberty, and the problem of freedom cannot even be raised. But if we distinguish between the infinite expansion of possible experience and the possibility of an infinite experience, as Kant does, then the law of natural causality is merely a provisional device for

the arrangement of phenomena with a view to our subjective mastery of them, a device which does not yield final truth and does not exclude recourse to other modes of interpretation, if, for valid reasons, we find ourselves called upon to resort to them.

To this extent, then, I should agree with Kant. But he takes a further step, and here my agreement with him ceases. We may think of the noumenon, he says, as that unknown X which lies behind the screen of phenomena, a mere ideal point to which attaches our logical demand for totality. We may also think of it, he goes on to say, as a cause which produces effects in the time series, and which has relations to and commerce with a certain particular class of phenomena. The noumenon in the first sense is the noumenon of the world in general. The noumenon in the second sense is our human noumenon, that which corresponds to and serves as a point of attachment for the idea of a unified or moral personality. It is this notion of intercourse between two wholly disparate orders of existence that creates all the difficulties, the insuperable difficulties, with which his doctrine of freedom is embarrassed.

The metaphysical objections are these. There are two factors to the combined use of which the human mind is unalterably committed by its very constitution. The one is a manifold of some kind, as a datum; the other, the synthetic process in some one of its various modes. Within the field

of experience Kant realizes that these two factors are inseparable, that unity is meaningless unless it be the unity of a manifold of some sort. Outside of the field of experience he seeks to cut the cord which connects these Siamese twins, to break the contract by which these two mutually dependent correlatives, these everlasting partners, are associated, and to establish a synthesis *in vacuo*, to treat the rational factor which contributes the element of unity to experience as if it were capable not only of existing by itself, but of becoming the cause of effects. This attempt to set off by itself one of a brace of correlatives, to cut with one of a pair of shears, seems to me the capital metaphysical error.

A second error seems to lie in the assumption, which is fundamental to Kant's argument, that effect and cause need not be the same in kind, causality merely implying dependence, and not involving an intrinsic connection. Now it is true that the effect is never wholly identical with the cause but, in some respects, differs from it, else it would be impossible, even in thought, to hold the two apart. And yet, not only is there, despite the difference, a fundamental identity, a common substance necessarily presumed to underlie all changes, but the changes themselves must be reducible to a common denominator, as when the physicist attempts to explain all the manifestations of energy in Nature as modes of motion. Nor can we establish a firm connection between effects and

causes until we have satisfied both requirements; until we have found or assumed an unchanging somewhat that underlies the change, and have discovered a common process of which all the changes may be explained as variations. Now, it is evident that, while Kant may be admitted to have proved the possible identity of substance, as between noumenon and phenomenon, he has not shown the common process of which the phenomenal and noumenal happenings are the modes, and, in default of such a demonstration, it is not legitimate to refer phenomenal effects to noumenal causes. Such differences as may properly be allowed to exist between effect and cause are differences within the same order, not differences between one order and a wholly different order. Moreover, the statement of Kant that causality implies merely dependence and not intrinsic connection shows that he transfers what is only true of phenomena to noumena. In the case of the former, precisely because they are only phenomena, we must rest content with a merely extrinsic nexus. But a noumenal cause is one the very assumption of which implies an attempt to satisfy our logical demand for a complete account of the relation between cause and effect, and a complete account must show the intrinsic bond between the two.

At this point, and before passing to other parts of my subject, I may perhaps attempt to indicate succinctly my own attitude toward the question of

freedom, as I have been requested to do. The problem of moral spontaneity or free will seems to me to be only a special case of the problem of mental spontaneity. Is it true that the mind can act spontaneously? Is it true that it can react in an original way on the data of sensation presented to it? When the key of sensation is thrust into our mental lock is there a bolt shot that holds fast experience and prevents the treasures we gather from being scattered to the winds? Does there occur an act of unification? If so, then this act of unification is an act of mental spontaneity strictly speaking, itself not explicable in terms of that manifold, of the coherence of which it is the prior condition. Thus, in a certain sense, we are entitled, instead of narrowing the territory of freedom, rather to extend it, instead of wondering and doubting whether we can vindicate the existence of freedom in one aspect of our mental life, rather to wonder at the suggestion that there should *not* be freedom in the mental life as seen from one particular point of view, since freedom, spontaneity, is the characteristic of our mental life from every point of view. I do not say, of course, that we can explain this fundamental act of unity in any of its manifestations. I only claim that it is not more inexplicable in that aspect of the mental life which we call volition than in any other. The fundamental question is: how the one and the many can embrace, how it comes to pass that all

that is highest in us, our science, our art, our ethics, should be the offspring of this marriage of two such alien opposites as the one and the manifold. And to this question there is no answer. We are so constituted. As a matter of fact, truth, beauty, and goodness are the children of this pair who are forever fleeing and forever seeking each other, forever clamoring to be divorced on the ground of radical incompatibility, and forever unable to endure the absence of each other's society. How there can be mental spontaneity is the insoluble problem, soluble only in a practical way, namely, by the assurance that there is. Every time a mathematician conceives the notion of uniform space, or a physicist the notion of uniform time, he performs an act of mental freedom. Every time we mark off a set of relatively constant processes and regard them collectively, *i. e.*, from the point of view of unity, as an object or a thing, we are performing an act of mental freedom. The chain of causes and effects, of antecedents and consequents, a chain which hangs loose in air at both ends, nevertheless, so far as link is interlocked with link, is a product of our mental freedom. Natural causation itself, which seems to fetter us as if we were slaves, is a fetter which we ourselves have forged in the workshop of mental freedom. The world, so far as we can speak of a world — and we can only speak of it by a species of poetic license; Nature, or this fragment of Nature of which we have

knowledge, which we have made in our own mental image, or, at least, stamped with our mental image, which, in this sense, we have not merely reproduced but created, Nature, I say, with all the causality that obtains in it, is the evidence and the witness of our mental freedom.

And yet, of course, there is a distinction between moral and mental freedom. Though the fetter be forged by our own hands, it binds us none the less securely. And the problem, as it seems to me, is really this: not how freedom is possible, for the answer to that question simply is, it is possible inasmuch as it is actual, but how is one kind of freedom consistent with another kind, the kind of spontaneity which we mean when we think of volition, with that kind of freedom which operates in constructive science? And what is the distinction between these two? Briefly, to my mind, the distinction is this. The act of unification, which is involved in science, is a synthesis of causes. The act of unification, involved in ethics, is a synthesis of ends. The face of science is turned backward. It seeks to explain the present in terms of the past. The face of ethics is turned forward. It seeks to determine the present with reference to results to be attained in the future. Or, to go a step farther, the ultimate distinction between science and ethics, is it not this? The manifold with which science deals, which it is its business to unify, is given in sensation, in experience. The manifold with

which ethics deals is not given, not supplied at all from without, but is a purely ideal manifold. Granted that, being so made as we are, the union of the one and the many is the burden of every song we sing, is the theme of that intellectual music in obedience to the strains of which our world, the little world we inhabit, is built up, — granted that this is so, we find that in the field of science our liberty is restricted by the circumstance that the manifold, which it is of the essence of our intelligence to seek to unify, is forced upon us, as an unalterable datum, to which we must accommodate ourselves in order to master it, and which yet we can never wholly master because of the irrational residuum which remains in it, despite our utmost efforts to rationalize it, because it is, in the ultimate analysis, intractable and uncongenial to our intelligences. And therefore, aiming at a highest manifestation of our constructive liberty, seeking an utterly free field for the achievement of rational synthesis, we figure to ourselves the idea of a manifold which shall be wholly tractable, of such *differentiæ* in which shall wholly be expressed the underlying unity, of such unity as shall wholly embrace and absorb in itself the opposing plurality. And it is by this means, by freeing the notion of the manifold from the restricting conditions to which as a datum *ab extra* it is subjected, by transcending the bounds of experience and taking the notion of the manifold in an

unlimited sense, as "manifold in general," by conceiving the two antipodal poles between which our intellectual life plays, as ideally harmonized, it is by such means that we arrive at the organic ideal, or the ethical ideal. For the two are identical. The organic ideal is that of an infinite system of correlated parts, each of which is necessary to express the meaning of the whole, and in each of which the whole is present as an abiding and controlling force. The ethical ideal is produced by applying this purely spiritual conception of an infinite organism to human society. To act as if my fellow-beings and as if I myself were members of such an infinite system in which the manifold and the one are wholly reconciled is to act morally. So act, not as if the rule of thy action were to become a universal law for all rational beings (for I shall presently endeavor to show that this is impossible), but so act that through thine action the ideal of an infinite spiritual organism may become more and more potent and real in thine own life and in that of all thy fellow-beings.

And how is this ethical kind of freedom compatible with the other kind which expresses itself in forging the chain of natural causality? The two are compatible only because they refer to totally different sides of the same act. Natural causality deals with the manifold that is given. It seeks to piece together the parts of it as they appear in the time series, to relate each successor to

its predecessor. Moral causality deals with a manifold that is not given. It signifies the force in us of an idea, namely, of the idea of a final reconciliation of Unity and Plurality, whereof experience presents no example, and which, nevertheless, in consequence of the inborn desire to harmonize the two conflicting tendencies of our nature, we are compelled to propose to ourselves as our highest end. Moral causality leaves natural causality intact in its own sphere and uses it. Natural causality may be compared to the shuttle that runs backward and forward weaving, according to unalterable mechanical laws, the web and woof of existence. Moral causality, our "best card" in more senses than one, may be compared to the pattern in accord with which the web is to be woven. (Technically speaking, the fatal error that vitiates Kant's Transcendental Dialectic is to be found in the proposition that the idea of the unconditioned arises solely *a tergo*. Any existing thing whatsoever being conditioned, he says, necessarily presupposes the idea of a preceding sum of conditions adequate to account for its existence, or the idea of an unconditioned. But we are not equally constrained, he maintains, to look beyond the present and to think of the multitudinous consequences of that which now is as converging toward a future unconditioned. So far as we are mere spectators of the show, inquisitive of causes, this is true. But, inasmuch as we are also actors, and since each end

of action that we propose to ourselves has only relative significance, we are forced, would we satisfy the demand for unity in the choice of ends, to push forward in anticipation toward some ultimate end to which all our minor ends may be related as means. The unconditioned of the future, therefore, necessarily arises for us in the field of conduct or of ethics, and the idea of the complete merging into one another of the manifold and the one appears to me, if not the absolute end, the highest and clearest representative symbol of it to which we are capable of attaining.)

Having thus, in bare outline, indicated my acceptance of the doctrine of freedom on other than Kantian grounds and with a meaning assigned to it different from his, let me now pass on to other points of criticism. The connection between the "Kritik of Pure Reason" and that of the "Practical Reason" is close and must ever be borne in mind. Kant is the philosophical exponent and champion of the universal reign of law. Throughout the "Kritik" it is his aim to fortify our confidence in the validity of natural laws. To this end, he demonstrates the existence in the mind itself of the types of which these laws are the replicas. He discovers in the mind itself the philosopher's stone which transmutes associations into laws. By what right do we speak of physical laws at all? he asks. What is the law-creating element which gives to these so-called laws their lawful character? These

are the questions which in the "Kritik" he puts. And the various forms of the synthetic process furnish the answers to them. Kant is the philosopher of physical law. His metaphysical concepts are intended to buttress and support the throne of physical law. And as to his fundamental ethical principle, this again turns out to be nothing more than the disembodied ghost of physical law, just the sheer idea of absolute lawfulness applied to conduct, just the bare notion of necessity and universality in action, without regard to the content of the act. There is no sunlight in Kant's moral world. All moral acts in themselves considered are as dead and cold as the satellite that revolves around our earth, and the light of universality and necessity, with which they shine, is reflected and comes to them from an unseen luminary lying beyond our horizon. Now, in replying to this view, let it be remembered that the notion of necessity and universality, in the "Kritik of Pure Reason," is always presented as the concomitant of the synthetic processes. Something occurs in consciousness, namely, the synthetic process in one of its various forms, and, in virtue of the constitution of our minds, we realize that this process, this act of unification, is necessary and universally valid for ourselves and for all rational beings like ourselves. Something happens which we recognize as necessary. But in the "Kritik of the Practical Reason" necessity and universality, these concomitants of

something else, are represented as if an independent authority belonged to them, as if they were cogent in their own right. This is not and cannot be the case. And here we light upon the flaw in Kant's ethical principle. Here we see why his ethics is so unconvincing. It is, I repeat, because that which is cogent only as the concomitant of something else is represented by him as if it were cogent on its own account. I do not admit, as is often asserted, that it is the formal character of Kant's ethical principle that makes it unsatisfying. The principle of causality, too, is a purely formal one, and yet it is fruitful and convincing enough. Rather is it the failure of Kant to point out, as underlying ethics, some specific, synthetic process capable of being apprehended by us as necessary and universal that makes his ethics sterile. It is a ghost, the ghost of natural law, which we are asked to accept as the oracle of conduct. Kant's Categorical Imperative comes to us with the impact of a blow on the head. "Thou shalt." Why? We are forbidden even to ask that question. One is sometimes tempted to think that the spirit of the Prussian Army, as it was handled in the days of Frederick the Great, Kant's contemporary, has entered, in the shape of the Categorical Imperative, into the domain of philosophy, that the Imperative of the metaphysician is a kind of echo of the commands of the corporal. But, if we take heart, nevertheless, and reflect upon the way we are thus bidden

to act, if we imagine a state of human society in which every man would be a perfect moral agent, according to Kant's formula, *i. e.*, a state of society in which every act of every human being would have the character of necessity and universality, and then ask ourselves whether such a state of society would really represent to us the perfect moral order; whether we should be able to dwell upon it with satisfaction, I think the answer would be in the negative. Suppose the goal, as Kant conceives of it, to have been reached; but what has been gained? Suppose that every word spoken and every deed done is determined by this abstract idea of universality and necessity. Suppose that men act with the precision of conscious automata. But in what respect would the moral order thus painfully established — if ever it could be — be superior to the physical order? The inhalation and exhalation of breath, the discharge of the basest animal functions, the fall of a stone, are marked by the same universality and necessity. Consciousness, indeed, would be superadded. The machine would be aware of the turning of its wheels. But this, considered as the net outcome of "the travailing and the groaning," is hardly an inspiring outlook. And moreover, even this result, the perfect automatism plus consciousness, could only be attained in the last days, at the end of evolution, in the far distant future. While, in the long interval, the consciousness which is superadded would be dis-

tinctly a disturbing factor inhibiting instincts which might have been surer guides, confusing and often baffling our decisions. Kant's ethics is a species of physics. His moral law is natural law dipped in the bath of consciousness. The fundamental flaw is that he represents the joint notion of necessity and of universality, which is cogent only as the accompaniment of the synthetic process, as if cogent on its own account.

The next point of criticism is that Kant's conception of morality is projected so far into the empyrean that there seems to be no bridge by which it can be connected with the actual sublunary world. According to Kant, a moral act is one which is performed exclusively out of respect for the idea of necessity and universality. Now, as he admits, it cannot be proved that such an act has ever been performed, and hence it follows that the existence anywhere of moral beings becomes doubtful. For what is a moral being? Shall we say a being *capable* of moral acts, capable only, without our having adequate reason to think that this capacity has ever expressed itself? Kant doubtless would say that a moral being is one who acknowledges the obligation to act morally, whether he does so or not, one who recognizes in himself the sort of constraint which is due to the working, as he would explain, of the idea of universality and necessity. But have we any ground for supposing that the preponderant majority of men are even faintly

moved by this idea of universality and necessity, that they stand inwardly in awe and reverence before it, or that they feel the obligation of purging the springs of their conduct of every other motive except that of respect for necessity and universality? And if we have no ground for supposing this, then, also, have we no ground for regarding the preponderant majority of mankind as moral beings. We cannot even be sure that we ourselves, who walk on the upper levels of abstract thinking, are moral beings! And hence the moral law falls to the ground because there is no one of whom we can be sure that he applies it, and no one to whom with certainty it can be applied. Plainly, we are bound to act morally only toward other moral beings. If, nevertheless, it is urged once more that though freedom be absent the idea of freedom is present in every human being, even in the most humble and the most debased, I must again reply that the idea of freedom, as Kant interprets it, is surely not present in the minds of the ignorant or of the vicious. And, if we are to continue to regard every one who wears the human form as a moral being, and as one toward whom we are bound to behave morally, it must be on other grounds than those with which Kant supplies us.

The next objection is that the practical moral commands are incapable of being derived from the Kantian formula. It is a matter of surprise that this difficulty has not more clearly forced itself on

the attention of the many thinkers who have trodden in Kant's footsteps. The duties which all recognize as moral cannot be derived from the bare idea of lawfulness. There is a fallacy involved in Kant's reasoning, there is a false assumption underlying it. To show what this is, let us take up his own examples of the moral commands or duties and observe the method by which he endeavors to deduce them from his formula. All that is requisite, he tells us, in order to decide in a given case whether a contemplated act is moral or not, is in thought to universalize it, that is, to suppose that all men should act in the same way. If, on this hypothesis, it is still consistent to act in this manner, then the act is moral. Self-consistency, on the basis of universality, is the test. For instance, take the case of veracity. A man ponders whether it is morally right or wrong to tell a lie. Let him assume that all men should make it their rule in their communications with their fellows to speak, not the truth, but the opposite of it. Under such circumstances, would not the entire advantage of lying disappear? Would it be consistent for a man, that is, consistent with the object which he hopes to gain, to prevaricate? A man lies, says Kant, on the assumption that others, that the world at large will stick to the truth. If every one else should lie, what profit would there be for him in doing so? The same holds good, he tells us, with regard to theft. A man may fail to respect the property of others so long

as he expects they that will be good-natured enough to respect his own. If stealing were to become general what would it profit anyone to steal? The same, again, applies to the duty of charity. A man may refuse to aid a fellow-being in distress, but he cannot desire that it shall become the accepted rule to leave the sick, the starving, the indigent to their fate. He can easily enough realize that a time may come when he will be dependent on the good offices of others, and that the rule which he had sanctioned in the day of his strength would seem wicked enough to him in the day of his weakness. It is hardly necessary to observe that it is not the gospel of enlightened self-interest that Kant teaches. He uses self-interest not as a motive but as a criterion. That which would be to our interest, if one and the same rule of action were adopted by all, whether actually it be adopted by them or not, — that is moral. But what an absurdly short cut is this toward solving the most intricate and complex of all practical questions, — the question, what is right? what is obligatory? what is my duty? Contrasted with the sublime flight which he takes into the region of the noumenal in order to obtain his first principle, this device to which he resorts for obtaining the laws of the noumenal as they reflect themselves in the world of phenomena, I must say, seems to me a veritable anti-climax. We can explain it perhaps by calling to mind that Kant devoted the

major part of his life to the investigation of physical laws and of the fundamental principles that underlie them, and that he gave to ethics, not intentionally but actually, the crumbs that fell from the table of physics, the remnant of the strength of his declining years. But let us see wherein consists the false assumption implied in his method.

To take up first the case of theft. If stealing were to become general, Kant says, it would be absurd to steal. The one who despoils another does so in the hope of keeping as his property what he seizes. If property rights were not respected at all, the thief might as well dip his hand into the sea, with a view of grasping and keeping a part of it, as into his neighbor's pocket. The fallacy underlying this reasoning is the assumption that, if all men were minded to take away the possessions of others, they would all be equally able to do so, the assumption that all men are equal, if not completely, yet to all practical intents and purposes. And this assumption he shares with the leading thinkers of the latter part of the eighteenth century. It was the same undemonstrable hypothesis that underlay the doctrines of the *laissez-faire* school in economics; the same hypothesis, blindly accepted, that inspired the political reasonings of Rousseau, that expressed itself in the French Declaration of the Rights of Man, and in the American Declaration of Independence, the assumption, namely, that all men are born equal. Strange as this view

appears to us, we can very well understand how it arose as a reaction against the artificial inequalities which the feudal system had introduced in European society. It was natural for those who rebelled against those artificial inequalities to go to the opposite extreme of supposing that all inequalities between man and man are artificial in their origin, and that if the prevalent hierarchical system of caste could be swept away and men be revealed in their true nature, as they come from the hands of the Creator, it would be found that no inequalities existed between them, at least, none that might not be regarded as negligible. It is this doctrinaire assumption of eighteenth century speculation that we find involved in Kant's attempted deduction of the practical moral commands from the idea of abstract lawfulness. If all men were really equal, then their intent to rob each other of their possessions would mean their ability to do so. But, supposing merely the intent without the ability, then the general acceptance of the rule of stealing would not make it inconsistent for the strong and unscrupulous to defy the weak, and to rest securely in their unhallowed gains, in the midst of universal lawlessness.

The derivation of the rule of charity is open to precisely the same criticism. Kant, in this connection, goes into some details. The duty of assisting the needy is not based on the egoistic expectation of a possible *quid pro quo*. It is not a

rule of *do ut des*. We are not advised to throw our bread upon the waters in the hope that it may return to us after many days. "For a man, conceivably," says Kant, "may be so misanthropic and sour in temper as to be quite willing to enter into a contract that no one shall ever help him if he can but have the satisfaction of withholding assistance from those who importune him for it." "But," he continues, "even such a misanthropist, pleased as he might be for his own part to escape from the claims of benevolence, could not as an impartial observer contemplate with approbation a state of society in which the rule were general, that no one shall act benevolently toward another." It would be against reason to approve of such a rule. The argument of Kant derives its force from the supposition that all men are equally dependent on one another, but it quite misses fire if, as is actually the case, this dependence obtains in highly unequal degrees. It would not be inconsistent, *e. g.*, for the miser who has purchased a large annuity, or has invested in safe securities, to refuse to give alms, trusting to the extreme improbability that he himself shall ever be in want.

The next example is that of truthfulness and falsehood. And here, again, I can see no reason why the rule of prevarication should be self-defeating, in case falsehood were to become general. Let us consider for a moment how such a plan would work. In the first place, there would be one

element of certainty upon which we could always rely. Everything that a man said to us would be sure not to be true. There is a sphere in which this state of things is said to a considerable extent to have prevailed, until recent times, — the sphere of diplomacy. Was it, then, inconsistent for a diplomatist to follow Talleyrand's maxim that language is given us for the purpose of concealing our thoughts, because he knew that his fellow-diplomatists would treat him in like fashion? By no means, for the obvious reason that not all men are equally skilled in concealing their thoughts. And even if this were not so, the difference in psychological penetration and in ability to interpret the signs, apart from language, by which facts may be ascertained would still make it possible for the crafty liar to attain his end at the expense of his more bungling competitor. I do not, of course, imply that the spectacle afforded by human society, if lying, theft, etc., were to become the general practice, would be a pleasant one to contemplate. Nor do I gainsay that even the partial acceptance of the moral rules greatly enhances the commodity of human existence. What I deny is that it would not be consistent for the stronger and the more crafty to pursue their selfish ends without scruple, if all others tried to do the same.

Finally, a word in this connection in regard to the grounds on which Kant bases the prohibition of suicide. Self-love, or the desire for happiness, he

says, is a means to an end, namely, the preservation and enhancement of life. It would be inconsistent, he thinks, if the same principle which is designed for the enhancement of life should lead to the destruction of it. This argument is so far-fetched and so unreal that one is at first at a loss to decide in what sense Kant wishes it to be understood. Does he mean that Nature has implanted in man self-love, or the desire for pleasure, for the ulterior purpose of preserving and enhancing life, pleasure being the bait, and life the end, and that the act of suicide would therefore exhibit Nature to the extent that she is manifested in man, as at variance with herself, the desire for pleasure producing the very opposite effect of that which it was intended to subserve? If this be Kant's meaning, then we must say that the inconsistency, if any such there be, is Nature's and not man's; that, like a bungling workman, she has failed properly to adjust her means to her ends; that, as a matter of fact, the bait is not seductive enough to produce the desired result. And why should man be held responsible for Nature's failure? But if Kant means that it is inconsistent for man, from motives of self-love, to end his life, since self-love is the force which prompts him to support life, then the answer is that this may be true of self-love in the instinctive stage, but that it is not true when self-love has reached the stage of reflection. The latter (reflective self-love) does not seek pleasure in order

that there may be life, but desires life in order that there may be the experience of pleasure. Life is the means, and pleasure the end, and not conversely. And, when the means cease to be adequate to the end, when life, instead of yielding a harvest of joy, produces only an evil crop of pain, it is not inconsistent, but highly consistent, on grounds of mere self-love to terminate life.

Let us now briefly summarize the outcome of the preceding discussion. Kant's position is this: Would you know what is a moral act? Take any action whatsoever. Ideally universalize it. That is to say, imagine that all men acted in such a manner. Then if, under this hypothesis, the act is self-consistent, *i. e.*, if it does not defeat its own purpose, it is a moral act. The reason why this deduction breaks down is because it is based on the error that the same rule of action, adopted by all men, would lead in each case to the same result. In consequence of the innumerable gradations of strength and intelligence that subsist among men, this is not the case. And hence the test of self-consistency fails.

There are two functions which remain to be performed by the critic if he would grasp the root from which the Kantian ethics springs, and comprehend the fruit it bears. One of these is an examination of the Kantian teleology, of the meaning he attaches to the notion of an "end," and of the illegitimate use, as I think, which he makes of this

notion. This inquiry is of the utmost importance because Kant, while vigorously excluding the pursuit of our own personal happiness as a moral end, enjoins it upon us as a moral duty to promote the happiness of others. It is evident that he is compelled to take this step if his moral system is to be relieved of its aspect of frowning austerity, and is to acquire warmth of color and richness of content. We must, according to him, repress the desire for happiness in ourselves. We must take our cue from the voice that echoes through empty infinities. Not even the Decalogue, as a set of specific commands, but, as it were, the tone of thunder in which it was promulgated, is to be the incentive of our personal morality; and yet we must be permitted to take an interest in the happiness of others, if our philanthropic impulses are not to be wholly thwarted. A merely negative morality, one which respects and forbears to infringe upon the precincts of the personality of others, is not enough. We must be enabled positively to further their development, and to assist them in the attainment of their ends. Philanthropy demands as much. And Kant was a thorough-going philanthropist. Strangely enough, his extreme rationalism seems to have been but the obverse side of a profound susceptibility to feeling, so profound, indeed, that perhaps he felt all the more the need of curbing it, a susceptibility which helps to explain the sympathy he felt for a sentimentalist like Rousseau, de-

spite the metaphysical differences that separated them. Kant felt the necessity of introducing the happiness of others as an aim in order to people the moral edifice which otherwise might have remained bare and almost untenanted. But was he justified in so doing? Was it allowable for him, on the basis of his system, to do so? For my own part, I submit that it was not, and for the following reasons. There are, as Kant maintains in the "Kritik of Pure Reason" and elsewhere, strictly speaking, no such things as natural ends. The notion of *telos* or end is applied to natural objects only *per viam analogiæ*. The *telos* is a provisional concept intended to cover the gap in knowledge due to our ignorance of causes. It is an index finger pointing to the existence of unknown causes, a prod intended to stimulate our search for such causes. A true *telos* does not exist in nature. We are only advised, or, if you will, enjoined, so to regard nature as if it were the product of a purposeful intelligence, as if it represented a concatenation of ends, in order that we may the better succeed in unravelling the chain of causes. A *telos*, strictly speaking, exists only in the moral realm. There is only a single example of it of which we have any knowledge — the act which expresses absolute universality and necessity. Now, so far as our fellow-men are moral beings they must work out their salvation without our assistance. A moral act is an act of pure spontaneity which no one can suggest to or elicit in

another. A man's morality is wholly his own creation. We cannot enter into another's soul. We cannot either infect or purify his motives. The degree of effort which he makes to lift the rational motive into consciousness and keep it there constitutes his moral desert. And that effort, in the nature of the case, must be his own. On the other hand, when we regard man as part and parcel of the order of nature, we find that the notion of end applied to him from this point of view is altogether illusory. Our desires, our volitions, are to be regarded as the effects of causes, quite as much as the melting of wax under the effect of heat. The fact that, in ordinary parlance, we use the term "end" whenever the representation of the outcome of an act precedes the act does not really justify the use of that term. The process of volition is not really teleological if the representation that precedes the act is itself the inevitable consequence of a string of previous representations. From the standpoint of the Kantian "*Kritik*," therefore, it seems to me forbidden to speak of the natural ends of man. As a natural being, he has no ends. The notion of end applies to natural objects only by way of analogy. It is intended to be used as a kind of wishing-rod to help us in locating the spot where we must dig for the gold of causes. It is only a device designed to facilitate investigation. There are no ends in nature. We merely conduct our investigations "as if" there were ends. Now my

criticism of Kant is that the proviso "as if," which he couples with the notion of end in the "Kritik of the Pure Reason," is omitted by him when he speaks of man as a natural object in the "Kritik of the Practical Reason." And thus, without justification, abruptly, he confronts us with the notion of the natural ends of our fellow-beings as the basis for a scheme of positive altruistic duties.

I must content myself with barely mentioning, in passing, that the illicit notion of end, as applied to man in his natural character, is also the unstable foundation whereon rests Kant's moral theology. A God is needed in order to harmonize the moral end and the so-called natural ends, to distribute happiness in exact proportion to moral desert. But if the basis of natural ends goes to pieces, the superstructure of moral belief, which has been erected upon it, likewise crumbles, and new foundations will have to be supplied if it, or anything like it, is to be maintained.

The nobility, the force and the fire of the Kantian ethics is contained in the proposition that no human being may be treated merely as the tool of another, merely as a means to another's end, but shall ever be regarded as an end in himself. This statement, to my mind, is the Alpha if not, as orthodox Kantians have claimed, also the Omega of morality. Unfortunately, I am compelled to think that in putting forth this statement Kant's ethical perception far outran his ethical theory, that the

theoretic underpinning which he offers does not really support this great practical pronouncement. We hear much nowadays of the necessity of a return to Kant. And I, too, believe that a return to Kant is necessary, at least for those who maintain that there is an absolute element in morality, despite the admitted relativity and changeableness of the specific moral commands. Yes, a return to Kant, but in the sense of taking up anew the problem which he attempted, but failed, to solve; in the sense of trying by a new path to reach the goal which he had in view, and which, it has become evident, cannot be reached by the path which he pursued. He has not justified the conception of an end in itself, as applied to man. He could not do so because he missed the organic idea from which alone the conception of end or purpose can be derived.¹

¹ We hear the crash of a tree as it falls in the primeval forest. We see the snow disengage itself from the brink of a precipice and tumble in powdery cascades into the abyss below. The notion of purpose does not arise in connection with such occurrences. We say "this thing has happened"; that is all. If we wish to go further, we ask "Why has this thing happened?" What are the causes that have produced this effect? We see an erratic boulder in the midst of a green field. We do not ask, "What end does it serve by being here?" but "What are the forces that have brought it hither?" Its being there is the effect of a cause or causes. An effect is that which happens because something else has previously happened. Shall we now define, by contrast, that a means to an end is something which happens in order that something else may happen thereafter? Kant takes this view of the relation of means to ends, and hence infers that the notion of an end is essentially an anthropomorphic conception founded on the analogy of the purposeful action of human beings. And this view is shared by the majority of those who have written on the subject. Watch-making and house-building are the typical examples of the adjustment of means to ends. The objects of nature, to which the teleological view applies, says Kant, are to be regarded as if they were the products of an intelligence like that of man, an intelligence in which the idea

And, lastly, the ethical system of Kant is individualistic because intellectualistic and rationalistic. What he calls the rational nature is the element

of the resulting whole, present in a mind operating from the outside, precedes and controls the arrangement and the specification of the parts. But a more thorough-going inquiry will make it manifest that this explanation is, in reality, a case of putting the cart before the horse, that, instead of the organic idea being an anthropomorphic analogy based on the purposeful action of man, the reverse is true, namely, that the purposeful action of man is dependent on, springs from and derives its meaning from the fact that he is an organic being, or at least that he is controlled in his conduct by the organic idea. The organic idea takes precedence. Our separate purposes are secondary to it, subservient to it, corollaries from it. Our simplest planful acts, — the eating of food to satisfy hunger, the quenching of thirst, the kindling of fuel to sustain the warmth of the body, the erection of dwellings for the sake of shelter, — all have reference to the functions of our body, *i. e.*, of a system of parts which are, at least to some extent, organically related. These volitional acts of ours are purposeful because the functions which they subserve are purposeful, that is, because the functions subserved are members of a system of correlated functions. And of the highest examples of human purpose in the realm of science, of art, and social conduct the same is still more palpably true. The reciprocal dependence of intellect, feeling, and will in the individual, the organic connection between each individual and all others in the social union is the background from which all these purposes stand out, the underlying reference which they imply. Thus the Kantian definition that the idea of the outcome of an act precedes the act is not adequate to characterize purpose. If it were, then such idle doings as the deliberate pouring of water through a sieve, or the heaping of sand on the beach in a vacant moment would be properly termed purposeful conduct, which they are not. The notion of purpose involves not only that the idea of the outcome of what happens shall precede the happening, but that that outcome, whatever it be, shall fit into a scheme of interdependent happenings.

Thus the organic idea, and it alone, enables us to substantiate Kant's fundamental ethical thought that man shall be regarded not only as a means but also as an end. In an organic system every means is at the same time an end. Every part subserves the others, and is served by them. The whole not only presides over the arrangement of the parts, but is present in each part. For the organic idea is nothing else than that complete fusion of the idea of the one and the many, the source of which in the very constitution of the human mind we have indicated above. The one is in each member of the manifold because the plurality is but the explication of the unity, and each of the separate members is indissolubly related to every other because every other is as necessary to that complete explication as itself.

of unity separated from its correlative, and man, so far as he is a rational being, is considered as an embodiment of this unity, a unit or atom, while the rational commonwealth is an aggregate of such atoms. Individualism was the keynote of eighteenth century speculation, and the individualistic tendency of the age found its most authoritative expression in the Kantian philosophy. If additional proof, after what has been said, were required, it would only be necessary to cast a glance at the "Tugendlehre," or "The Doctrine of Virtue," in which Kant outlines the scheme of practical morality which springs from his theory. In this practical exposition of the chief duties of life, we find that the self-regarding duties receive minute attention, that the general altruistic duties are also carefully considered, while the specific duties of the family, of the professions, of the various social classes toward each other, etc., — in brief, those duties which most obviously imply an organic relation, a correlation of dissimilars rather than a co-ordination of similars, are either scantily treated or wholly omitted. The conjugal duties, for instance, do not appear at all in this scheme of practical morality. The personal duties are accentuated. The social duties, in the strictest sense, are left out. And therefore the Kantian system — and this is perhaps the weightiest objection that can be urged against it at the present day — cannot adequately help us in devel-

oping the social conscience, cannot satisfy that need which to-day is felt more keenly than any other, the need of a social ethics, the need of a clearer statement of the principles which shall determine social morality. In his private life, too, Kant displayed his individualism. He not only never married, but he did not recognize, in a finer sense, the ties of consanguinity. He discharged punctually his external obligations toward his kinsmen, but even his nearest, his brother and his sister, he kept at a distance, as his biographer tells us, in the belief that association should be a matter of free choice, and not subject to the constraint of natural bonds. Friendship, however, he celebrated in terms almost as eulogistic as those of Aristotle, friendship, the one social tie which is most congenial to the spirit of individualists, because it can be knit at pleasure and dissolved at pleasure.

These, then, are the objections or the points of criticism which I have desired to submit.

In defining freedom, Kant tries to set off by itself one of a brace of inseparable correlatives, to cut with one of a pair of shears.

In positing mere empty necessity and universality as the essential characteristics of moral action, he offers us the ghost or echo of natural law as the motive of conduct and represents the cogency which accompanies the synthetic process as if it could exist with the synthetic process left out.

His scheme of morality, founded on pure ration-

ality, is in the air and has no footing upon earth. There is no one to whom we can be certain that we owe moral duty because there is no one of whom we are certain that he is a rational being, in the Kantian sense.

The moral rules cannot be deduced from the Categorical Imperative, and the deduction which Kant undertakes is based on the false assumption of an equality between human beings, which does not exist.

The conception of man as an end in himself, which is the most inspiring of his pronouncements, is at variance with the "Kritik of the Pure Reason," and is not established by the "Kritik of the Practical Reason." It cannot be justified in his system.

Finally, his ethics is individualistic and cannot serve us in our most pressing need at the present day. And yet, despite these shortcomings, Kant's ethics has sounded through the world with a clear, clarion note, has had a mighty awakening influence, and something like the flashes of the lightning that played on Sinai have played about it. It has had this influence because it emphasizes the fundamental fact that the moral law is imperative, not subject to the peradventure of inclination, of temperament, of circumstance—an emphasis to which every moral being, at least in his higher moments, responds. It has had this influence because of the sublimity of the origin which he assigns to the moral law, because he translates it from the

sphere of ephemeral utilities, whether individualistic or racial, into the region of eternal being, comparable with nothing in the physical universe except only the starry firmament. And last, and not least, because his own lofty personality shines through his written words. A man may be bigger than his creed, and, in the same way, he may tower above his philosophy. I think it is true to say that Kant's personality produces this effect upon his readers, that when we study his ethical writings we obtain the impression of one who was fallible, indeed, and shared in many ways the limitations of his time, but who, at the same time, was a man morally high-bred, a man in whom a certain chastity of the intellect communicated itself to every faculty, producing a purity of the entire nature, incomparable of its kind, a man to whom may be applied the words which Aristotle used of Plato, *ὃν οὐδ' αἰνεῖν τοῖσι κακοῖσι θέμις* ("whom the bad have not even the right to praise").

THE ABUSE OF ABSTRACTION IN
ETHICS

THE ABUSE OF ABSTRACTION IN ETHICS

BY HERBERT GARDINER LORD

EDWARD WESTERMARCK begins the first chapter of his recent and able treatise on "The Origin and Development of the Moral Ideas" with a noticeable statement. He asserts "that the moral concepts are ultimately based on emotions either of indignation or approval." And again in chapter six, in which he seeks to prove this proposition, and as it seems to me without success, he affirms that "either indignation or approval must be at the bottom of every moral concept" (p. 131).

It is the purpose of the present paper to consider the soundness of this doctrine; but more than this, to oppose that method of conceiving the moral life of man, of which this contention of Westermarck is an example. It seems to the writer a method quite wrong from its abstractness, from its doing violence to the complexity of real life. It appears to be the unconscious and imperative tendency of many minds, and often of a high order of excellence, to find a unity in the rich manifoldness of human consciousness by the sacrifice of the

concrete many to the abstract one. By attention concentrated on one element, through over-emphasis on one aspect to the neglect of other aspects, just as surely and just as much there, one comes to misconceive the reality of life and misinterpret it. This method of abstraction, the method of all science, properly used, is of the highest worth. It is an invaluable instrument for the handling of an otherwise unmanageable complex reality. But in using it one should be conscious of its true character: that it temporarily for convenience substitutes aspects for totalities, elements for unities, abstractions for complexities. It is a method of manipulating the real; it does not give us the real. If it is practically useful to conceive of man's life at any given time as fundamentally emotional, as rational, as hedonistic, or as voluntaristic, why, so then and there conceive it. But that conception of it is abstract from and not the concrete whole.

Now it may be seriously questioned if most of the various solutions of the moral problem do not have this one fundamental error of erecting a convenient abstraction into an adequate and complete representation of the essential nature of man's ethical life. When we start from this point of view and examine many works on ethics, we discover a certain confusion underlying the language of the writers, or an utter unconsciousness of underlying presuppositions that their words and conceptions necessarily imply.

This seems to be the case with Westermarck. While we are aware of what he means to say, yet when we examine more closely what he implies in what he actually does say, we find that often his implications come near contradicting his assertions. For example, he speaks of "the phenomena which evoke them" (the emotions of approval and indignation); and again, "the moral concepts are essentially generalizations of tendencies in certain phenomena to call forth moral emotions" (pp. 4 and 5). If it be asked what possible meaning the term "phenomena" can have as here used, the reply must be that it must mean situation. And situation is a term to express an ideational construction. Phenomena cannot certainly mean the bare sensations, arising from the stimuli, as little as it can mean these stimuli themselves. These phenomena that evoke, these situations to which come those responses which are emotions of indignation and approval, are ideal. They are the conditions *sine qua non* of these responses. No situations ideally constructed of just this sort, then no emotions of just this kind evoked by them. Why then cannot one say, why indeed must not one say: the moral concepts are ultimately based on ideal constructions? for every emotion presupposes a judgment. In fact, when the concept named by the term emotion is analyzed, and when we ask what we mean by that word, we discover that emotions as such have no existence except in and

through ideational construction. They have no separate or separable existence apart from ideas. As the ideal constructions change they change. Emotions get their distinctive qualities from the ideas involved in them.

But let it be noted in passing that the attempt is not made here to establish that the idea is the true ultimate, that which must be found at the bottom, of moral concepts. It is only pointed out that the ideational has as valid a claim to be the true ultimate as has the emotional; that the very terms in which the principle of Westermarck is stated imply, if not the opposite of what he contends for, a serious limitation on the truth of his doctrine.

Something should be said before going further on the bearing of the question of the ultimate on the problem of the nature of morality. If by ultimate we mean the earliest discoverable form, we seem to proceed by elimination of differences between earlier and later forms till we arrive at some form which carries with it none of these differences. This undifferenced thing we call ultimate. And this is clearly non-moral. To say that our moral concepts are ultimately based on these early non-moral impulses, does not help us very much. It helps us no more than to say our wisdom is based on bare sensations, or even on the energy in the form of the food we push into our mouths as Ostwald would have it. This is in a sense true. As no food, no brains; no brains, no sensations; no sen-

sations, no wisdom. But wisdom is not bread, and mechanical impulse is not morality, though prior to it and so ultimate in order of time. As soon as we add a difference to *this* ultimate, we get another ultimate, viz., this difference itself, and this second ultimate is what constitutes morality as moral. The nature of this difference when it appears is learned by no search for its prior form. It had no apparent prior form. It is a first of its kind. Whence it came, how it came, is undiscoverable. No formula of "tendency to variation," or "principle of differentiation," does more than with longer and heavier words to state the simple fact that the difference arrives, no man knows whence or how.

Ultimate, as earlier form, then, does not help us much. But ultimate, as essential and profounder characteristic difference, might help a good deal. And when we ask what that difference is, we may be better able to answer from later rather than from earlier forms. The moral hero of the twentieth century might take us farther and deeper into the mystery of the essence of morality than our remotest arboreal ancestor with his caudal appendage, even if we could catch him and dissect his muddled consciousness. The consciousness of the highly differentiated, exquisitely integrated civilized man of to-day is the true revelation of the ultimate nature of morality. In him will be found most clearly marked off that peculiar difference which distinguishes the ethical from all else. And

that increasingly more clearly defined difference, as it more and more in the past gave promise of the clearer differentiation and more perfect integration that has come, so this better defined difference of to-day may prophesy something better for the years to come. In this case ultimate would be something ahead rather than something behind. And the essential nature of morality will then become for us something yet to be learned, as certainly as it was to our earliest philosophic ancestors.

Abandoning then the attempt to learn the nature of morality from its earlier forms as a wholly futile endeavor, we are driven for whatever light we can get to the analysis of the developed moral consciousness of to-day. In what has been said above, by way of introduction, it has been clearly indicated that while our method must necessarily be one of analysis, that method has its perils. The abstraction of a single aspect of moral consciousness must not be made identical with that moral consciousness itself.

It has been pointed out that the ideational has as valid a claim to be the ultimate of moral consciousness as the emotional. Something further may be urged on this point. If we may make use of a classification of Mr. Rutgers Marshall, that as there are on the one hand "instinct-actions," so on the other there are "instinct-feelings,"¹ we get a

¹ "Instinct and Reason," p. 86.

happily conceived way of representing the essential fact of original psychic dispositions or impulses toward certain psychic results. One of these is toward cognitive organization, the systemization of ideas, of percepts, and concepts. This impulse is as deeply founded in consciousness as any other. It is what is involved in *intelligent* learning by experience. Without this original push of consciousness toward systemic ideal constructions, learning by experience would not be possible. And this impulse by its very nature involves a sense of relations, a placing of a given element here rather than there in the system. And that gives us at once a sense of rightness that is quite purely cognitive, logical, or rational, which in and of itself evokes cognitive or logical approval. So we have an intellectual integrity, or honesty, that does not seem to wait on *emotional* approval, but depends almost, if not quite altogether, on what is often called a certain insight of reason. Because of this original impulse to systemization, or organization of consciousness within, goes on the organization of things and persons without. Persons get themselves related to one another as members of a system. Their places and functions are, as such members of such system, just this and not that. It becomes a matter of rational insight to fix their places and functions as in the case of the relation of ideas. And this system established carries with it a certain imperative. It is, from this point of view, the imperative of an

intellectual order, cognitive rather than emotional. Things, actions, persons, must stand related just so and not otherwise in the insight, which is also the imperative of reason.

This is what we mean by justice in its abstract forms. As between oneself and another "the image of an impartial outsider who acts as our judge" is none other than this rational insight into the relation existing between two who are cognitively to each other just this and not anything else. It is the vision of the actual reciprocity of the two. From this comes the Golden Rule in its various forms: "Love thy neighbor as thyself," "Do unto others as ye would be done by," "Put yourself in his place." But, furthermore, even this simpler justice necessitates the power not only to "see yourself as others see you," but even more adequately, and as we say more justly, to put yourself where you belong in a system of many, in which you not only count for one and no more than one, but in which you count for just that sort of one, fulfilling just that sort of function, which your place in the rationally conceived system involves or necessitates. And this gives us a form of justice much more profound and complex than that of the Golden Rule, and requiring constructive imagination and rational insight of the very highest order. And with this insight goes necessarily an inevitableness, an inexorableness, and, as we say metaphorically, an imperativeness, which no amount of twisting and

intellectual thimble-rigging can avoid. The logic of the system cannot be avoided any more than a step in a mathematical demonstration. The system constructed may be wrong, to be sure, but so long as it stands, its parts, elements, or members are *placed* and there is set over each of them the imperative of the system in which they are members. And it requires nothing but the rational insight into the system to give one the sense of an inexorable imperative. Then righteousness, justice, or what you will is for anyone, being that element in that whole, just that member in just that system, to perform his function wholly up to and never in excess of the part assigned. Thus does a man "fulfil all righteousness" as far as he is concerned.

In the practical morals of men this fundamental impulse is everywhere in evidence. "Say what we will," says Mr. Booker T. Washington, "there is something in human nature which we cannot blot out, which makes one man, in the end, recognize and reward merit in another, regardless of color or race."¹ This expression is typical of its recognition *semper, ubique et ab omnibus*. That is, when a man is seen rationally to be in his place in the system and fulfilling his function therein, the logical reason cannot help itself. Race and color are to it irrelevances.

I would repeat here again my warning given above. I am not the champion of an ultimate

¹ "Up from Slavery," p. 235.

ideational as against an ultimate emotional basis for morality. I am only wishing to make clear that there is as much to be said for the intellectual as for any other basis for morals. I do not wish to seem to ignore my original thesis, that the fundamental error in the study of the problem of morals is abuse of the abstractness of the method necessarily employed.

It will only be necessary to mention with brevity that the burden of the moral development of man has in large measure rested on intelligence. Through criticism of moral concepts in face of well-nigh overpowering emotional hostility has the progress of the race been effected. "The *vis agens*," it has been well said, "in the long process of evolution lies in the intellectual development of the human race."¹

This part of the discussion may be fitly closed with a somewhat less abstruse treatment, by the use of concrete illustration. If we take two extremes, the revengeful man wreaking vengeance on the one who has wronged him, or the man of utter self-sacrifice destroying himself for some fantastic cause, we find alike in both emotional approval of an undoubted kind of their several acts. It is intellectual darkness on the one hand, as much as passion or emotion on the other, that accounts for the conduct of each. More light, that is better, more intelligent, ideal construction would

¹ Dr. Steinmetz quoted in Westermarck, p. 25.

have saved the vindictive man from what is his utter stupidity, as it would also have saved the other equally foolish creature from throwing his life away for some trivial end, some mere freak of fancy. Neither of these acts, however emotionally approved, or passionately well-meant, can ever be accepted as righteous, because they can never be made to fit into a rational scheme, as elements of a system constructed in and through the insight of reason.

If again we go down to Wall Street or elsewhere and consider the prevailing commercial ethics of the day, we are struck with what is called the absence of fair play. What is called for is, in the phrase made popular by President Roosevelt, "a square deal." The concept so named, either as fair play or a square deal, is really that in which perception of relations plays the main part. It is an intellectual process; the vision of reciprocity, my relation to him like his relation to me. Exhortation becomes more than persuasion, than emotional excitement which it also is. It becomes forcing upon the commercial community the perception of the relation of its individuals to each other as members of an organism with fixed imperative functions determined by the system. And legislation (slowly it may be) is framed with reference to that rational insight.

If last we go from business to sport, we get an interesting illustration. If the football player can

think of himself as only a member of his own team, whose sole function is to win games for his college, any play that is a winning play becomes wholly proper as relevant to that end. But if he can be brought to think of himself as a member of a larger whole, let it be of no more than the college world at large, certain plays fair on the narrower basis of his own college team, become at once unfair and wrong. Whether certain plays will excite his emotional approval or indignation depends then on how he conceives of his team, whether of a larger whole or system. And, lest in the heat of the contest the larger conception be driven out of his mind, the umpire is there. This umpire invades the consciousness of the excited player with the more comprehensive ideal construction in accordance with which certain plays have place and certain others are ruled out. Just so far as the player is trained in ignorance, or into neglect of the larger ideal, he becomes, as is the phrase, no true sportsman. On the other hand, just so far as he loses himself in the mere passion for winning, plays become emotionally condemned that lose the game, or emotionally approved that win it, and a sneaking resentment arises in him against the umpire, which will not away till in cooler hours the larger ideal system takes possession of consciousness and holds sway by virtue of its very own reasonableness, and as such evokes, — better, compels emotional approval of itself. Then the umpire's decision becomes the

very voice of that ideal system. Back of the umpire stands this system, with its imperative, masterful no more over umpire than over player. He finds himself held, as in a vise, to a fixed right thing to do in that system of which he sees himself a part.

But there are other elements that seem to possess just as solid a claim for ultimateness in moral judgments as either of these two so far considered. There is the conative aspect of consciousness that has a very decided claim. If we seek origins, as first forms, we find consciousness arising as an instrument in practical adjustment. Sensational, perceptual, ideational, emotional, indeed all modes of consciousness may be regarded but as forms and means toward adjustment of the psychophysical organism to environment. Fundamental then would be the push, to use a metaphor from physics, toward equilibrium; Herbert Spencer's "adjustment of inner relations to outer relations," whatever that may mean.

On the inner side we find, corresponding to this outer activity in adjustment, that there is, so to speak, a current in consciousness. It moves, and not generally in no particular, or in all directions, but to one end, at first gropingly, at last more and more knowingly and definitely determined. This end may be called also adjustment, provided this metaphor be not taken too literally and made to walk on all fours. Or it may be called an inner harmony of impulses or of the elements of con-

sciousness. According to this conception all acts of adjustment of the organism to its environment are not ends but merely means to the attainment of certain moments of consciousness, which are in their time and place possessed of this harmony. And, since consciousness is essentially itself a moment, the end, if the word may be allowed, is a succession of such moments, each moment of harmony being antecedent to its consequent moment of harmony. By this end are all outward acts and all inward processes finally controlled, though more often than not with scant consciousness of this end and of the means to attain it. This is a way we may perhaps best represent to ourselves the all-embracing central interest of human mind. And as "interest," to quote Stout, "is conation defining itself in cognition," we have, as the ultimate fact of consciousness, a process, this conation defining itself in cognition. This conation at length becomes a will set to attaining this end, with increasing clearness defined in cognition. It has a twofold character, it is set, on the one hand, to ever clearer definition of end and means; on the other, to realization of this better defined end through these better defined means. This form of conation, this set of consciousness toward the undefined end is "the will to believe." This set toward the realization of the end so far as defined, through the relevant means thereto so far as known, is the will to be right.

Here seems to be the very inmost sanctuary of the human moral consciousness, the veritable ultimate basis of morality. And in a sense it may well be conceded, until one reflects that he is after all looking at an aspect of a complex, is abstracting not so much even as a part from a whole, nor so much as an element from a compound, as he is a mere aspect of a concrete whole. It is as though he took the convexity of a curve as the curve, ignoring its concavity and curvature as being each as necessarily an essential aspect of it as any other. If consciousness be conceived of as conation defining itself in cognition, the very form of the conception involves this definition of the process in cognition, this cognitive aspect, as much as that conative aspect. That is to say, it is not the object of our regard that is ultimately at bottom conation; it is only our way of looking at it that makes it seem so. If we go round and look from the other side, our curve is concave, our ultimate of consciousness is ideational. The concrete real is as much one as the other, is both and doubtless more beside.

We may consider this claim for the ultimateness of will in moral consciousness from another point of view. Events that occur in the mechanical order, whether external or internal, do not excite the indignation or approval that we call moral. They excite regret if disastrous, or the feeling of good fortune if in one's favor. Events which evoke the emotions of indignation or approval have fol-

lowed upon, or have been themselves decisions (or the absence of decisions where decisions should have been. No decision to go, when go or stay you must, is morally a decision not to go). These decisions felt first in oneself, subjectively, and as such (to borrow Clifford's term) "ejected" into the *alter*, constitute among others the most emphatic of the elements of personality. "The deepest sense of human affairs is reached when we consider them not as appearances, but as decisions," is a remark of Professor Münsterberg.

Now it is events as coming from decisions of persons that give rise to moral approval or the contrary. "Moral indignation is, in its essence, directed toward the assumed cause of inflicted pain."¹ Again "Moral self-condemnation is a hostile attitude toward oneself as a cause of pain."² The cause is not a thing, a mechanism; it is a personal agent, oneself or another, whose act issues from or is a decision given or omitted to be given. Ultimately, then, it all turns, it might easily be claimed, on a question of will.

When we approach the problem from the side of emotions, one might draw much the same conclusions. There is, for example, all the difference in the world between regret, even the bitterest, for the inevitable, and remorse, no matter how slight, for what might have been otherwise. And that peculiar difference lies not so much in the

¹ "Westermarck," *Loc. cit.*, p. 69.

² *Loc. cit.*, p. 105.

difference between the emotions of regret and remorse as such, great as that difference is. It lies in the cause that differences these emotions, in the absence or presence of some act of will. That act of will might, indeed, not have altered the event, but could have changed the attitude of one's mind toward the inevitableness of it. A man might not have been able to save his neighbor from drowning, but he might have wished to, even have willed to. And just in that attitude of will lies the difference between regret and remorse, lies the essence of morality, and not in the automatic emotion following on the mental attitude. So it may seem clear that an act of will, a decision, "must be at the bottom of every moral concept." These concepts are generalizations based on acts of will.

But if one takes pains to consider the words which he is compelled to use in expressing these conceptions, he discovers that there is much implied that seriously qualifies his main contention. He recognizes that by decisions of agents he means complex ideal constructions without which that bare abstraction called an act of will could not exist. He sees that he has pretty much repudiated his doctrine of the ultimateness of will in moral judgments in the very act of formulating it.

Approvals then follow on decisions, whether these decisions become effective through the prepotence of certain ideal constructions over others, or through some more obscure processes of con-

sciousness. But what decisions? decisions tending toward and having reference to what end? The answer to this question brings into view a conception of the ultimate basis of morals that ever has had, and perhaps always will have, many adherents. They answer only those decisions that have reference to the attainment of happiness and ever can be, in the last analysis, approved of as right. And in this contention appears an element or aspect of consciousness which must be reckoned with. If we go back to what has previously been said concerning adjustment and the inner harmony arising out of it, we may recall how all outer acts of the organism and all inner processes of consciousness are with reference to the attainment of a harmony through successive moments of consciousness. The persistence of this contention throughout all the ages of reflection upon the nature of the moral life is presumption enough that there is in it something solid. The most careful and thorough analysis will inevitably convince one that here is indeed an indubitable fact to reckon with, and to build on. The elements of emotional approval or disapproval, of ideational construction, of practical adjustment, or volitional decision, are no more efficiently there than this of the hedonic tone of consciousness. That moment of consciousness has value which is agreeably toned. It is useless to deny this. Consciousness must ever be hostile toward what tones it disagreeably, ever

favorable toward what tones it pleasantly. No more ultimate basis for morals, it seems to many, can ever be discovered than this. The ethics of the New Testament Scriptures, no less than of Aristotle, are constructed with reference to it. The Sermon on the Mount begins with Beatitudes. St. Paul writes: "There remaineth therefore no condemnation for them that are in Christ Jesus," as if the removal of that disapproval which is the sense of sin were the soul's main hunger. A later New Testament writer speaks of Jesus as one "who for the joy that was set before him endured the cross." And the eudæmonia of Aristotle confesses unimpeachable presence of this element.

Yet it will become evident to one who more carefully considers that, true as this contention is, when regarded from one point of view, it is yet false when conceived too abstractly. There is to be sure in all approved moments of consciousness an agreeable tone, as in all curves there are convexities. But as convexities vary so do hedonic tones. Hedonic tone is as much an abstraction, having no more existence apart from the concrete moments of consciousness than any convexity has existence apart from its curve. And as curves vary and so do their convexities, thus also it is true that as moments of consciousness differ enormously in their complexity so do their hedonic tones differ from each other. There is no such thing as a generic hedonic tone for consciousness. There are he-

donic tones for concrete moments of consciousness differing as one star from another. As there is confessedly to be detected underlying consciousness an hierarchy of impulses, giving rise to what may as well be called an hierarchy of concepts or cognitions, and of emotions, so also it may be felt to give rise to an hierarchy of hedonic tones. It is clear to anyone who carefully watches his own successive psychoses, that the hedonic tone of any one psychosis is not of equal value with that of some other. He will become aware that psychoses differ not only in complexity of structure but in quality of hedonic tone, and that quality of hedonic tone is determined by the character of the psychosis of which it is a constituent, that as on the one hand it helps to give character to that psychosis, so on the other hand it receives quality from it. Thus the end of psychical movement is not hedonic tone as such, but that total complex psychosis of which hedonic tone is only one of many constituent elements.

But, again, whether the approval spring from the agreeable tone, as it is so often assumed without question, or on the contrary the agreeable tone spring from the approval is open to serious question. At any rate this much may be said. No matter what other elements in any moment of consciousness may tend to give it agreeable tone, if there is not the element of approval, there is not yet any deep, wide, and lasting pleasantness for

consciousness. A flash of light here, a casual word there, and it is gone.

“ Just when we are safest, there ’s a sunset-touch;
A fancy from a flower bell, some one’s death,
A chorus-ending from Euripides, —
And that ’s enough ”

to bring the shock of disapproval, and with it disagreeable feeling tone continues till disapproval is removed or approval is won. If there be won this approval other elements of disagreeableness, however great, can be endured. The massive movement of the complex unified consciousness of a Socrates drinking hemlock, of a Jesus dying on the cross, whatever strong eddies of pain there be in it, is still toned agreeably, as it makes head conqueringly toward that end which each has ideally constructed as fit. And does not that tone rest on the solid basis of approval whether cognitive or emotional?

In short a hedonistic ethic has its only possible justification in an abstraction that does violence to the actual concrete complexity of the moral consciousness of man. It is true as an aspect of a unity is true. But it is not all that is true. It is not even the unifying centre of all that is true.

Before bringing this discussion to a close, it seems proper to take some more comprehensive view of the matter than has so far been definitely attempted, though all along of course it has been implied. Perhaps this can be as well done by

using the concept of situation of which use was made early in this paper. It was there observed that in Westermarck's expression "phenomena that call forth moral emotions," phenomena could mean nothing else than situation. And it was still further observed that situation is a name for an ideational construction. I want here at once to reaffirm that statement and to modify it. Situation is an ideational construction, but it is both more and other than that. To understand what that is to which we respond, what phenomena are that call forth emotions, or evoke actions, there is needed careful study of the mode in which situations are built up.

Bringing to bear on the matter the light of genetic psychology, we discover that the simple object, if there be any really simple object, in its first form as mere stimulus followed by certain consequences in consciousness of cognition, hedonic tone, and so forth, does not continue simple object. It becomes an increasingly complex object for consciousness, to which consciousness itself gives that character to which its responses are made. And this object is not built up of cognitions only. In it are fused with cognitions, conative, hedonic, and emotional elements. Because of this the object becomes to us in itself actually an agreeable object, because the object put out there by consciousness evokes agreeable feeling tone. In the same manner we get painful situations. These are not groups of sensations, or perceptions, fol-

lowed by certain consciously separated results from certain clearly distinct antecedents. They are certain total mass objects, called situations, to which we react. They are highly complex constructions, the elements of which are not merely cognitive, but are as well emotional, hedonic, conative. The original simple object so qualified by this fusing becomes an altogether different object. It becomes, perhaps, an unjust act of oneself or another. This unjust act, as a total complicated situation, compacted of many elements, arouses indignation, not necessarily or often perhaps because of any definite consciousness of this, that, or the other element, but as a total mass. To its upbuilding have gone not primarily merely emotions of indignation, but other modes of consciousness, actions of will and body, cognitions, whether sensations, perceptions, or ideas, feeling tones of various kinds, massed, packed into what we might call figuratively a solid. And that solid object, so built up, and present in any moment of consciousness, determines the movement of consciousness, fixes the character of the consequent psychosis. Not any one element by itself, for the time prepotent, fixes that character. The vast underworld, of submerged manifold elements of past varied experience, on the bosom of which, borne up by its mass, floats this prepotent element, gives to it its character. It is what it is, and is powerful for consequent movements of consciousness and ac-

tion, because of the deeps on the surface of which it appears as shifts the focus of consciousness over the wide field of inattention, which wide field is ever the most controlling part of consciousness.

This being so, it seems to me quite absurd to pick out any one now-and-again prepotent element of consciousness, and call it ultimate; or again to abstract out an undeniable element thrown for a moment up out of the deeps forcefully upon the attention, and say of it, this is what constitutes righteousness. One may say it is always an element in, now prepotent, and again more or less subconscious, never the one element that constitutes righteousness. Happiness is there, adjustment is there, reason is there, emotional approval is there; now this one more apparent than that one; but never any one without the others in the right life.

To be sure, because of the limitations of human faculty, the necessity is upon us to seize the world in its fragmentary almost isolated elements, or to think only through over emphasis on certain aspects. In the cart-wheel, the hub may seem to be more fundamental for thought than spokes, or felloes, or tire, since we drive our spokes into the hub, set round and on these the felloes and encircle these again with the tire. But really the wheel is all these, and without any of them it is not the wheel. Its unity is not in any one of its parts; so is it with consciousness, its unity is not in, and

cannot be adequately stated in terms of any one of its elements or aspects. We may talk about the keystone of the arch, but we know that is a convenient falsification of the fact, that each stone counts as much in the whole as the keystone. So we may talk about adjustment, or happiness, or emotion, as fundamental elements of righteousness; but if we are wise, while we so speak we shall recollect that this is but a convenient abstraction to help our lame understandings, and that it falsifies the rich complexity of reality.

But if one would wish some more perfect form of conceiving this ethical life of man than this convenient way of taking a part for the whole, temporarily prepotent aspects for the unity, doubtless nothing has ever been discovered more wholly satisfactory, though difficult through vagueness, than the Greek conception of harmony. Its very vagueness perhaps makes it more adequately representative of the complicated reality of what would be the wholly righteous soul. There would be in it at once the logical consistencies of rational systems, the profound congruities of emotional concords, the orderly behaviors of ethical rectitudes, all organized into a higher morality than that of common speech — a morality inclusive of all the motions of consciousness and all the acts of body. It would be a harmony in which the contentions of the artist against the mere moralist, of the practical man against the philosopher, would at last

be reconciled. To be sure this is sufficiently vague. But even so it is better descriptive of the facts than the erection of any abstract aspect into the representative of the manifold wealth of the concrete whole. We ought not, in the interest of clearness, to sacrifice truth.

**PURPOSIVE CONSISTENCY, THE OUTLINE
OF A CLASSIFICATION OF VALUES**

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BY G. A. TAWNEY

CONSISTENCY we have elsewhere defined as the property of reflective activities by virtue of which they tend to keep up and maintain themselves. It is both a passion, a form of things in the objective world, and a mode of action. Its original roots lie deep down in the pre-reflective immediate experience of very young children and lower animals, in the capacity for pleasant and unpleasant emotions, and in those instinctive and impulsive modes of action which, without the primitive individual being in the least aware of the fact, tend to maintain the species of which he is a part. Sentient activity everywhere displays purpose. It is purposeful; but in pre-reflective immediate experience it is so only to the outside scientist who looks on and studies it. Through the exercise of the sense organs and the nervous system and by carrying out their instincts and impulses, individuals and species develop concerted modes of co-ordinated and co-operative conduct calculated to preserve species and im-

plying the same or similar thoughts, passions, and psychic organization in all. They acquire an acquaintance with their environments and with their own bodily powers and members which guides and controls them in the search for food and shelter, in carrying on offensive and defensive battle and in other congenital and acquired modes of conduct. They cannot, however, be said to reason. They are only acquainted with things, they do not know about them. They "think things" and are unable to stand off and judge them. Their ideas are simply and straightway joined to the muscular movements which they initiate. Pre-reflective experience is not deliberate. It is not organized, as reflective experience is, by a consciousness of relations, or by that distinction between subject and object which underlies things and their attributes. Objectivity and universality do not exist here and questions of validity do not arise. There is consequently no difference between facts and values at this stage. Knowledge, in the logical sense of the word, does not exist. Such selection of ideas as takes place is determined by associations of pleasantness and unpleasantness in the experiences of the past, by suggestions received from the activities of other individuals, and by the congenital instincts and impulses of species toward the satisfaction of which the individual organism is characteristically bent.

The unit of this pre-reflective experience should not be conceived as the reflex arc of biology and psychophysics, a process which begins with a stimulus and ends with muscular movement. We should conceive the simplest form and type of experience, more adequately than Mr. Spencer, as an act which returns upon and maintains itself by renewing its own stimulus. For Spencer, experience in every sense of the word is a sort of epiphenomenon of organic processes of the form defined by the reflex arc. We are warranted in thinking of experience as a spiral activity which without interruption returns upon itself at higher and higher levels. In pre-reflective experience it does so without deliberation. But there naturally comes a time when individuals and species become aware of such self-maintaining acts as *their own*, when they experience experience, and the experience of experience preserves the form of the more primitive and elementary activity. The task of tracing out the natural history of this growth has been undertaken by the sciences of genetic psychology and sociology. When this step of growth takes place, the original spiral process of early experience appears as a continuous manifold of most interesting properties. It breaks up into arcs or segments each of which shortly appears to be a world. Corresponding to the stimulus there is a world of presentations. The individual and his kind are aware of themselves

as occupying places in an objective order of things. Corresponding to the habitual movements and motor processes of primitive experience, with their forms of co-ordinated and co-operative activity, there arises a universal practical order in which the very being of each depends upon the maintenance of certain relations to others. The purposefulness which lay hidden, so to speak, in the capacity for pleasantness and unpleasantness ripens into a sense of consistency and a conscious demand that the world of reflective experience be maintained. The harmony between certain objective forms and our habits of perception and attention becomes an experience of beauty. The contributions made by objects to the satisfaction of instinctive and impulsive needs give content to a world of economic values. The uniqueness of reflective experience itself becomes the ground for an order of absolute values. Each arc of the spiral of primary experience acquires properties, differentiation, and organization from all the points of view supplied by secondary or reflective experience.

We shall call the organization of the world of presentation its constitutive consistency, because this order constitutes it an independent and self-maintaining universe. Its laws and categories are in no sense of the word made by the knowledge of them. They exist to be discovered. The continuous manifolds of time, space, similarity, and

implication which obtain in the universe are *a priori* and universal. Hence such orders as are represented by the terms subject and object, thing and attributes, essential and accidental properties, and hence also the manifold relations of correspondence which make those substitutions possible in which the life of reason and science consists.

We shall call the order and organization of the world as a sphere of conduct its practical consistency and observe that this also is universal, objective, and necessary. The prejudices and preferences of individuals make no actions either good or bad. Forms of conduct must be such that they may and do enter into all experience and possess a moral quality in independence of all individuals, or they have no place in the universe of practical consistency. The organization of such a universe, necessary as it is to reflective experience, possesses an unconditional form which is not derived from the content of experience, however dependent upon the content of experience for a knowledge of it we may be.

Similarly we shall call the organization of the world of needs and passions its purposive consistency, and observe that it also possesses an unconditional form imposed upon it *a priori*, so to speak, by the nature of reflective experience. Just as there are various sorts of constitutive and practical consistency so also there is variety in purposive consistency, the artistic and æsthetic, the

economic and utilitarian, perfection and uniqueness in objects and in reflective experience as a whole. In the remainder of this paper we propose to make a brief study of various sorts of purposive consistency.

It must be remembered that these three types are aspects of every experience rather than essential characters of distinct and separate groups of objects. We find the world of presentation to be systematic and ordered, and in knowledge we wish to have clearly stated the exact conditions under which each truth holds. Exactness is necessary before knowledge can be of any use in the control of further experience. Moreover, we need an idea of the object as a whole before the claims of constitutive consistency are satisfied. In the realm of conduct, the right, duty, and the good apply respectively to conduct as objective and presented, to the moral agency of the individual and to the ends of moral action. Beauty is a quality of the same world whose constitutive order is the object of supreme interest to the special sciences; economy and utility qualify experience practically; perfection and uniqueness of individuality qualify purposively the manifold of passion itself.

Let us take for example the activities involved in some scientific experience such as the writing of history. They must in the first place be systematic, accurate, and thoroughly in keeping with the

demand for constitutive consistency, and before they can be said to be thorough-going and complete they must comprehend ultimate postulates and causal explanations. The entire picture should rise out of the background of nature in such a way as to leave no real questions in that field unanswered. Moreover, the investigator of history is also in some sense a maker of history, and it is conceivable that he should be making history in some other way. The needs of his family or those of his country might be such as to make the investigation of historic questions under the circumstances morally or legally wrong. In any case his activity is either right or wrong, he is either fulfilling or failing to fulfil his duty as an agent, and his conduct on the whole either contributes or fails to contribute to the realization of that ultimate good which is a good for all mankind. Moreover, his efforts will not receive our unqualified approval unless they please the æsthetic taste, satisfy the claims of utility and economy, and appear as demanded by that uniqueness of purpose which is a man's highest claim to worth. Thus some nine varieties of value arise when the original cycle of immediate experience becomes the objective arc of another experience.

Indeed, each of these varieties of value has two phases determined by the degree of organization, the adequacy of the technique of judgment, in the particular field of each. Some problems fall

so completely within the rubrics of a special technique of judgment that the solution can easily be reached by simply setting that technique in operation. Thus the moral and legal institutions of society may be adequate to solve any given question of practical consistency. Where they do not do so we must fall back upon some such conception as sovereignty of moral order or of the state for the solution of questions of right and wrong, upon some such conception as freedom or autonomy for the solution of questions of duty, and upon some such conception as a rational social universe to solve questions relating to the good.

Where such questions are legal in nature they involve the philosophy of law and government, but if they are of such nature as to fall clearly within the moral sphere, they become religious in character and we appeal to an ideal infallible judgment. Similarly in the sphere of constitutive consistency, when technique fails we try to decide questions of uniformity and order analytically by the law of identity, questions of exactness by some such principle as conservation, and questions of completeness and explanation by the purposive principle of isolation. We proceed analytically and speculatively and our solutions are necessarily tentative, serving as hypotheses to guide us in the further investigation of problems. In the end the technique of science may be revised or extended to meet the needs of new problems.

Once more, in the realm of purposive consistency, when the technique of art fails to furnish adequate solutions of problems, when the conventional models and standards of criticism fail, the artist is thrown back upon the original æsthetic taste of reflective experience and his judgment must be offered as an invasion for the approval or disapproval of his contemporaries. In the sphere of economics, the inventor has no guide but the general principle of utility. When our problem relates to the perfection or individuality of an experience and conventional standards do not apply, we have nothing to guide us to a decision except the sense and sentiment of absolute uniqueness, which is perhaps the profoundest craving of human life.

Many attempts have been made in the past to construe the principles of practical consistency as constitutive. Ever since the Stoics formulated their conception of law as a thing both natural (or constitutive), rational, and divine, writers have been inclined to say that moral laws and other principles of practical consistency are laws of nature and therefore more ultimate and authoritative than laws of society. The *jus naturalis* of Roman law and of the founders of modern jurisprudence, the philosophy of right of Althusius, Grotius, Hobbes, Rousseau, and the American Declaration of Independence, the writings of such men as Emerson and Maeterlinck, the doctrine of the

equivalence of values and that of the unlimited increase of values, — these and many more serve to remind us of the extent to which principles of practical consistency have been construed as constitutive principles of the natural world. But this tendency is without foundation in the experience of the race. It is also unwarranted by a critical study of the differences between the principles of nature and those of conduct. The former are constitutive while the latter are demanded. The former represent forms of existence without which no such thing as a natural world can be or be conceived. The latter hold the same relation to social order that the former hold to natural order, but a natural order is conceivable entirely apart from the idea of a social order. Writers sometimes speak of the principles of practical consistency as spiritual laws and call them self-executing. Emerson frequently writes in this vein. But the laws of practical consistency are not self-executing in any such sense as the laws of constitutive consistency. In the case of the latter there is a literal and physical carrying out of the letter of the law which has no correspondent in the sphere of duty.

It is just this difference between these two kinds of consistency which gives rise to the moral argument for the existence of God in the practical philosophy of Kant, and which has led others to conceive a sort of pseudo-constitutive moral order

superimposed upon nature. Indeed, what is the notion of a divine government of the world but an extension of the same idea? There is no constitutive principle which provides that the practical values of conduct shall be met and equated in life by corresponding degrees of happiness, or that the possibility of growth in practical values is unlimited, and yet there is something in the form of reflective experience which demands that such an equation and such a possibility shall be real. Hence the existence of God to bring it about, hence the immortality of the soul, and hence the entire scheme of divine government and the plan of salvation which grows out of it. Most people who believe in the creeds of Christendom do not distinguish between the manner of the existence of nature and that of the divine government of the world, except to say that the latter is more permanent than the former, and this gives rise to a whole series of questions as to the possibility of the existence of souls without bodies and without the natural order of which bodies form a part, questions as to the process of resurrection and the character of the punishment which in the spirit world each must undergo for the sins done in the body. The plain truth seems to be that the practical order of values is not constitutive and this entire mediæval world-drama necessarily retains something of the character of a philosophical poem. It is sometimes taken as a matter of sur-

prise that the main features of this poem do not admit of demonstration on the principles of constitutive consistency.

It is often held that the deeper categories of science, the organizing concepts of the world of presentation, are all æsthetic. Completeness and order are certainly two of the forms of constitutive consistency, two of the characters of the world, and they as certainly enter as normative principles into æsthetics and art. Exactness is not so easy to construe as an æsthetic demand, and exactness is the main bone of contention between the schools of realism and idealism in modern art.

There is, however, a difference in kind between scientific order and completeness on the one hand and æsthetic order and completeness on the other. The former are constitutive, necessary to the bare existence of a world of reflective experience, while the latter are, if not gratuitous, at least not essential to the concept of a world of presentation. Moreover, scientific order is abstract and occupies the focus of interest, while the order and completeness of æsthetic experience are marginal and concrete. One might say that the latter are subliminal. When we fix our attention upon the relations of order and completeness in objects of æsthetic value, we cease to be appreciators of beauty and become scientific analysts, philosophers of beauty.

Scientific conceptions undoubtedly satisfy a fun-

damental demand of reflective experience. We are gratified by them. But the satisfaction is different in quality from that of contemplating beautiful objects. The gratification of scientific conceptions is an assurance of ease in the further activities of experience, a confidence of facility in carrying out further tasks of reflection. The gratification of æsthetic contemplation does not point beyond the present moment. It would be complete if there were no future. It is essentially the satisfaction of repose. The corresponding uneasinesses in the presence of disordered manifolds are likewise different from each other. That of the scientist calls for active interest in the manifold itself. That of the æsthete rather calls for negation and exclusion. The scientist proceeds to bury himself in the manifold in order that he may find himself there again. The æsthete proceeds to save himself by damning the whole situation and turning elsewhere for consolation. To the one we react positively. To the other, negatively.

The methods of enjoyment in the two cases are different. Scientific triumphs are seen to be such only as we look away from and beyond particular concrete objects and contemplate a range of experiences which could not possibly be presented. Objects of æsthetic appreciation themselves absorb all our eyes and concretely satisfy our ideal needs. The test of scientific values lies in their

consistency with further and further facts, while the test of æsthetic values lies in the direct enjoyment of them. It is like the test of pudding, except that this lies within the capacity of the individual while the test of beauty involves the possible universal enjoyment of it. Scientific order remains forever a triumph. Each moment of further experience is an opportunity of applying our interpretations anew and anew realizing their worth. Æsthetic value on the other hand does not endlessly satisfy. It grows trite and *langweilig* with too great familiarity.

We cannot look upon the attempt to reduce the categories of constitutive consistency to æsthetic terms as anything but a step toward confusion. It brings out strongly the fact that some of the fundamental categories of science are purposive, but in the interest of both æsthetics and epistemology we should like to see the difference between æsthetic order and scientific order more generally recognized. There are certain purposive scientific formulations which hold places of fundamental importance but are nevertheless neither axiomatic nor demonstrable. When we ask for their justification it appears that they cannot be deduced from anything more general than they are and that they do not admit of empirical proof. The universality of causal relations, the *dictum de omne et nullo*, the doctrine *ex nihilo nihil fit*, the postulates of the different geometries, the

definitions of number, the notion that nature is a closed system and the doctrines of conservation based upon this notion when taken together with the law of equivalence, the laws of motion, the principle of cosmic teleology, the physical concepts of mass, force, and acceleration, the notions of continuous space, time, substance, and motion, the laws of identity and sufficient reason, — what are they all but demands which the bare existence of a world of presentation makes upon our logic? They are necessary to the world, forms without which there could be no such world, forms without which there could be no such thing as judgment, but forms whose validity can be established neither by experiment nor by analysis. If we seem to establish any one by these methods it will always be found either that the verification starts with and rests upon some other one, which is not verified, or that it is established in an hypothetical form which shows its essentially purposive character. At bottom they are forms of continuity and order which precede rather than follow inference, postulates, not results of thought. They are purposive elements of constitutive consistency, demands for integrity, completeness and wholeness in the objects of reflective experience. If in science we abjure all such postulates and by a *tour de force* confine our attention to matters of exact description, after the manner of the positivistic theory of knowledge, we leave the demand

for integrity unsatisfied. Science becomes a thing of shreds and patches and the world, a mangled body whose bleeding stumps of legs and arms cry out for finger-tips and toes. The order and completeness of science are *akin* to those of æsthetics, first cousins perhaps, but they are not the same.

Similarly in the sphere of conduct and practical consistency, attempts are made to regard the fundamental categories of ethics and jurisprudence as æsthetic. Practical values are sometimes identified with grace and culture. The great names of Goethe and Plato are connected with this view as well as the lesser ones of Shaftesbury, Hutcheson, Herbart, and others. They emphasize the sense of fitness in man, the eternal fitness of things, and the ontological character of moral and natural laws. Immorality is worse^d than a crime, it is in bad taste, it is a blunder. This makes ethics purely a science of ends and a branch of æsthetics, as Herbart treated it. There can be no doubt that every act, object, and institution in the world can be regarded from the æsthetic point of view, but the question is whether æsthetic categories are fundamental in ethics and jurisprudence, whether the order of practical consistency is essentially an æsthetic order. That it is not and that the two orders are fundamentally different seems certain in the light of the fact that practical consistency is everywhere demanded while æsthetic

order and purposive consistency in general are not. The forms of purposive consistency define limits at which practical experience would cease. The sentimental yearning for absolutely complete and perfect experience is like the tropism of the moth for the candle-flame, a yearning for a nirvana of unconsciousness in which the struggle of practical life shall have ceased. Struggle, change, and readjustment belong to the essence of practical experience, and a world of pure beauty, of perfect utility and economy, or of absolute individuality and perfection would be a world of nothingness. Hence the comfort of the exhortation of Rabbi Ben Ezra, "Welcome each rebuff that turns earth's smoothness rough, each sting that bids nor sit nor stand, but go."

Imagine a society of people of perfect culture (if you can) mercifully removed and shut off from the rest of the world in a place of perpetual music, artistic landscape pictures, and ideal architecture, a place where people talk poetry and live in rhythms of æsthetic gratification and repose, a place with no sins, no tobacco, no police, no strikes, no poverty, and no wars, a place where men become as children, taking no thought. Then in accord with the poet's injunction to his stranded crew,

"Let us swear an oath, and keep it with an equal mind,
In the hollow lotus land to live and lie reclined
On the hills like gods together, careless of mankind."

How long would it be before the strenuous life would claim us by its very brutality and misery? How certainly would the order of practical consistency disappear and life sink to a dead monotony of boredom. Practical consistency is demanded. That of æsthetics is like a pure gift of the gods. It is merely enjoyed. Practical consistency is categorical. That of æsthetics is a matter of taste and culture. Practical consistency is achieved by struggle and enjoyed in struggle. That of æsthetics is ruined by struggle and enjoyed in repose. Practical goods are ends to be possessed, ends which we are bound to possess. Æsthetic goods are detached and their enjoyment does not involve possession. The latter are such that their possession is often not to be conceived. The practical world is profoundly serious. Its atmosphere is the atmospheres of the street, the workshop, and the laboratory, when these are tinged with reverence. The æsthetic world on the other hand is a world of semblance and make-believe. Its atmosphere is that of the play-house, its attitudes are the attitudes of children at their games.

The purposive category of perfection cannot be made fundamental in ethics and jurisprudence without giving us a sentimental theory of practical consistency. No one can live by it without growing "self-centred" and missing that fine graciousness of character and beneficent efficiency of

conduct which are fruits of practical consistency. Absolute perfection is incompatible with finitude. It is the name of nothing which enters into practical experience, of nothing which can regulate it. It is essentially a contemplative, limiting category. Of course we may define perfection, as Spinoza did, in such a way as to make it a synonym for activity and reality, but this is not the sense in which the term is usually used. In that sense it is a constitutive, not a purposive, category. If perfection be defined in relative terms, it becomes identical either with utility or with the idea of a rational social universe which reflection imposes upon practice *a priori*. Of these two conceptions, a further word.

That *mere* utility is not the form of ethical and jural ends has always appeared in view of the fact that the sanctions of utility are conditional and not categorical. That, nevertheless, the goods of the world of practical consistency are, in some sense of the word, at least useful, is clear in the light of the fact that they are always goods for somebody. The weakness of the utilitarian ethic lies not so much in its assertion that practical goods are satisfactions as in its denial that they are anything more than satisfactions. That they are *a priori* and categorical has always been asserted in opposition to utilitarianism. Utility made effective in experience by memory and association is undoubtedly a principle of selection

and a determinant of action in both pre-reflective and reflective experience. But when we say the capacity for pleasant and unpleasant emotions is the basis of ethical and jural theory, we logically exclude from these disciplines one supremely practical obligation, namely, the obligation to control and train our capacities for pleasant and unpleasant emotions. That some forms of happiness are preferable to others has usually been recognized by hedonistic writers, but their reasons for discriminating among pleasures are often not in the least hedonistic. Some writers resort to an intuitional standard of excellence in pleasures and thus combine intuitionalism and utilitarianism. It amounts to a confession that utility is not the ultimate category of ethics and the sciences connected with it.

We should rather say that the end of reflective practice is the maintenance of reflective practice, the maintenance of the multi-polar self-in-relations-to-other-selves of reflective experience, and this end might be called a rational social universe. Certain ends are set for us by the institutions of society. Certain choices are facilitated by an organized social technique of practical judgment, and it is only when problems arise which do not fall within that technique that the question of the ultimate end of practical consistency becomes pressing. For example, the question, prior to the Civil War, of holding slaves. Such questions

naturally become religious in minds which take them seriously. We consider the relations of men to each other in an ideal City whose builder and maker is God, and pattern our attitudes and actions after them. Consider the attitudes of certain members of certain clubs in large cities where artificial standards of club honor are accepted. Those members who reject these standards are looked upon as strangely pious, not to say fanatical, and the idea is probably warranted by the mental attitudes of the men themselves. For they probably appeal to the sanctions of an ideal social order where club honor does not exist.

We have spoken of three kinds of pure purposive consistency, and the remainder of this paper should treat of them. We have distinguished two types of each kind and must leave it to our discussions of the nature and types of consistency in another place to justify the distinction. There is beauty, the purposive consistency of objects of presentation which, when defined by conventional models, we may call art and, when not so defined, æsthetic judgment. There is the purposive consistency of practical conduct which, when formulated by the institutions of society, we may call, for purposes of distinction, economic and, when not so formulated, utilitarian. And there is the purposive consistency of purpose itself which, when organized and retrospective, we may call

perfection (using the term in a relative sense) and, when prospective, absolute uniqueness and completeness.

Beauty is an intrinsic quality of objects and admits of definition as little as the quality redness does. The norms and standards of æsthetic judgment are consequently models or examples, not principles or abstract formulations. Conventional art criticism follows the models of the masters. Great artists have imitators and become the founders of schools. We may analyze the experience of beauty and discover in its objects unity, symmetry, proportion, harmony, the conformity of the object to its type or to its characteristic, suggestiveness due to a wealth of associations, utility, analogies between mind and the object, etc., but beauty is more than any or all of these. They may make an object only agreeable, useful, or interesting. Just what the physiological and psychological conditions of the experience may be is a matter still under investigation. Economy of the attention, the association of ideas, and the need of normal and healthy exercise for the sense organs, muscles, and motor powers in general are doubtless three principles involved in it. The Kantian conception of a felt purposiveness or harmony between the object and the organization of the self probably contains much of the truth in regard to the matter. In the proper sense of the word beauty does not enter

into pre-reflective experience, although in the experience of reflective beings it is always immediate. Education, custom, and habit undoubtedly influence it, but it is not a product of these alone. Beauty is categorical. It pleases but this is not the reason why it is beautiful. The beautiful is often useful, but as often useless. It is often the outward expression of an inner spiritual quality, but this is not essential. Historically, the objects and activities which are later to be appreciated æsthetically precede the appreciation itself, and in the earliest art forms the influence of such things as sex, militarism, religion, magic, domestic economy, protection, and tribal custom is evident. The appreciation of nature comes later.

The field of economics is an enormous one. From one point of view, science, morality, and industrial organization are economic devices of vast moment to reflective experience. They may be regarded as ways of reducing the manifold media of life to homogeneous terms, and the greater the homogeneity of means attained in these various fields, the greater the heterogeneity of ends made possible to practical experience, that is to say, the greater freedom. Certain time-honored conflicts arise from this dual significance of the products of reflective activity. Economic purposiveness involves the idea of progression from stage to stage in the realization of ends while the world of constitutive consistency does not

necessarily involve this idea. In evolutionary progressions, from the point of view of science, $S_1 = S_2 = S_3$ where S represents stage. But from the point of view of practical purposiveness we cannot say this without reducing the progression indicated by the figures 1, 2, and 3 to an illusion. Evolution represents a causal series of stages which from a constitutive point of view are all equivalent and from a purposive point of view all different. Purposive consistency is volitional while constitutive consistency is cognitive. We will forward but cognize backward. The purposive view of things is based upon and involves the Aristotelean notion of final causes or sufficient reason, and constitutive causation has sometimes been identified with final causation, to the great confusion of both.

It is sometimes said that causation is a volitional category merely. There are reasons for rejecting this view. (1) Two events related constitutively as cause and effect may or may not have the same purposive significance. The accidental explosion of a shell in the wrong camp illustrates the difference. The term accident gets its meaning largely from this disparity between constitutive and purposive consistency, within the same series of events. The shell explodes according to the same constitutive law of causation whether it explodes in the enemy's camp or in the camp which fired it, but it possesses two diametrically opposite pur-

positive meanings in the two cases. Its explosion in the camp that fired it was not intended, not purposed. The constitutive or scientific view of the explosion is in this case as in all others satisfying, but from the economic point of view it is horribly unsatisfying. (2) Cause and effect can be equated scientifically, but the two stages of a purposive system cannot be equated because they represent different degrees in the realization of a common end. (3) The constitutive relation of causation is one of invariable sequence, while final causation is invariable only within the same system.

Some one may reply that relations of invariable sequence and equivalence cannot exist except as the terms related belong to a single purposive system, but this is provided for in the various phases of constitutive consistency itself. We have already seen that there are purposive elements in constitutive consistency, and these are not volitional elements, so long as they are constitutive. The disparity between the two ways of viewing events arises only when the same event or series of events is conceived as belonging to two different purposive systems at once. In the above example the explosion is part of a battle and at the same time part of the total system of nature. The purposiveness involved in the constitutive consistency of the explosion with its conditions is the unity of nature as a whole, while the volitional purposiveness of which the explosion of the shell

in the camp which fired it is a violation of the unity of the battle.

In the economic order and organization of experience we may distinguish those cases in which means contribute to the realization of an end which lies outside of them, those which realize an end immanent in the means themselves, and those cases in which the end is reflectively chosen by the means themselves. An illustration of the first is a bridge, a train of cars, or a building. An illustration of the second is any organism. An illustration of the third is the family. In the last case the means become their own end. The order and organization of the state are in a way their own end. Self-maintenance is its highest law. And so is it in the case of reflective experience as a whole. The first of these three is the case of organization of the mechanical type. The second brings us face to face with a group of perplexing questions as to the origin of life, its chemical basis, the problem of vitalism and that of neo-vitalism in biology. Is there a purposive life force in addition to the mechanical forces of the physical and chemical elements of the organism, and if so how is it related to the conscious activities which come later in the evolution of sentiency? How are all related to the reflective type of purpose which we have characterized as its own end. We may distinguish two types of such purposes, the organized and the reorganizing, those purposes of finite indi-

viduals whose lives are so interrelated that together they realize a relatively complete experience for each one, and that purpose of reflective experience as a whole which is our highest measure of value, the individuality and uniqueness of the universe.

**THE PROBLEM OF METHOD IN MATHE-
MATICS AND PHILOSOPHY**

THE PROBLEM OF METHOD IN MATHEMATICS AND PHILOSOPHY

BY HAROLD CHAPMAN BROWN

THE great influence which the conception of a mathematical method exercised upon philosophers in former times, both as to method of procedure and valuation of results, and the very slight regard which is paid to it in our day, sets us the problem of accounting for a remarkable discrepancy in judgment. Leibniz,¹ in the spirit of the founders of modern philosophy, believed that the sole possibility of ending philosophic controversies was through adopting mathematical method, while Kant,² even as early as 1764, put forward the notion that mathematics and philosophy have nothing in common, neither content nor method, and alleged grounds commonly accepted in our day.

Pragmatistic discussions are now stirring the depths of philosophic methodology, and mathematics is no less perturbed by critically reconstructive researches of logicians,³ viz., Peano,

¹ Cf. "De Scientia Universali seu Calculo Philosophico," 1684.

² "Über die Deutlichkeit der Grundsätze der natürlichen Theologie und Moral."

³ Used as by Couturat, *Prin. d. Math.*, p. vi, but cf. G. Cantor, *Gesch. d. Math.*, Bd. 1, S. 145, where it denotes arithmetical calculus applied to sensible things as opposed to pure science of number.

Russell, Whitehead, Couturat, and others. Amid the upheaval of both of these sciences we venture to reconsider the question of method, and ask what relation exists between the methods of mathematics and of philosophy, in order to discover whether the founders of modern philosophy were worshipping false gods, or whether we are neglecting something which might be of the utmost importance to our researches. We may also acquire a certain light from this study on the truth-values that may be justly ascribed to diverse philosophies.

The task is actually a dual one. In the first place, it is necessary to discover what mathematical method really is, for the vigor and proximity of logistical researches has begotten, in lack of perspective, a certain confusion in the minds of mathematicians themselves; and when the real import of mathematical method has been grasped, it must be compared with the method of scientific philosophy, not only with respect to general character, but also as to perfection of development. To speak in anticipation, the two regions of investigation, mathematics and philosophy, by no means demand or permit the diversity of method which Kant thought called for, and the clearer development of the mathematical method can be of service in suggesting certain critical approaches to the philosopher.

It must be remembered that the first outspoken connection of philosophy and mathematical method,

made by Galenus,¹ was in connection with logic, so that philosophers who, as their temperaments dictated, have been nauseated or amused by its offspring, the card play of Murner, and the mysterious figures of Lullus, should not hold these results as evidence of the triviality and futility of our problem. In the seventeenth century, however, when philosophy is characterized by Windelband² as a strife of methods, this charge seemed better founded. Descartes believed in mathematics as the universal science, and apparently had a pretty correct idea of its significance, but with the Port Royal logic, his conception was simplified to the traditional *more geometrico*, which is merely an imitation of the form into which Euclid cast geometry; in this stilted form Spinoza naïvely accepted it, and in the field of Natural Right it has persisted to Wolff in the eighteenth century.³ If this is mathematical method, as it believes itself to be, we should rejoice that it had sunk into a state of harmless desuetude, so far as philosophy is concerned.

But it is not so. It was a misunderstood and perverted idea of the whole matter which the followers of Descartes propagated. Mathematics was not yet in a position in which she could understand herself, much less be understood by others, and rationalism, quick to grasp a congenial notion,

¹ Cf. Prandl, *Gesch. d. Log. im Abendl.*, Bd. 1, S. 562.

² *Hist. of Phil.*, p. 379.

³ Cf. Windelband, *loc. cit.*, p. 432.

seized upon the deductive process and neglected to look deeper. We now have a phrase "hypothetico-deductive system" which, when properly understood, puts a new face on the problem and those who have patience to go on to the end will find involved a union of inductive and deductive procedure not widely different from that demanded by science in general. Leaving these things to be proved as we proceed, the first problem is, what is mathematical method?

I

Mathematics is represented in our day by two sorts of workers, the logisticians whose successes are primarily in the morphology of mathematics, a logical problem, and the mathematicians proper whose chief ends are the solution of mathematical problems and discovery in general. But because of the newness of logistical researches, their significance seems to have been much misunderstood both by their expositors and by their opponents.¹ For example, Poincaré² claims that, while errors are lamentable in any scientific work, they are death to the "new method," for the "new method" sets itself up as infallible. Deductive procedure, whether rightly or wrongly, always has a tendency

¹ Cf. "The Discussion between Poincaré and Couturat," *Rev. d. Met. et d. Mor.*, 1906, also C. Lucas de Peslouan, *Rev. d. Phil.*, April, May, June, 1907.

² *Loc. cit.*, May, 1906, p. 296.

to claim infallibility, and only the deductive aspect of logistic has been clearly recognized even by logisticians. This turns out to be a neglect of facts.

A similar error leads to the reproach that logistic is fruitless in its results, for it hampers rather than aids creative mathematical imagination. This has been denied. Couturat¹ claims that Leibniz discovered infinitesimal calculus only as a sample of his formal logic. But even if it were so, the function of logistic, if limited to critical reconstruction, would be a highly important one. Even Poincaré,² its opponent, distinguishes two types of mathematical mind, the "intuitionist" and the "logical," both of which are equally necessary to science,³ although the former are usually the discoverers, and the latter the critical perfectors of the more or less imperfect contributions of the "intuitionists." Logistic, then, is not fruitless, unless it be taken as aiming at more than it intends, at more than critical reconstruction. It is the problem of the "logical" type of mind.

The chief objection, however, from a philosophic point of view is that logisticians define the simple by the complex,⁴ that they neglect the clear and undoubtable for very complex and badly understood notions which they laboriously and

¹ *Rev. d. Met. et d. Mor.*, March, 1906, p. 213.

² *La Val. d. la Sci.*, chap. 1.

³ *Loc. cit.*, p. 15.

⁴ Cf. Lucas de Peslouan, *loc. cit.*, June, 1907.

artificially express in an arbitrary finite number of unwieldy postulates. This charge at first seems to be justified, but it neglects to consider what is the real meaning of simplicity, a very difficult notion, and when we come to consider it, in connection with the logical problem of mathematical morphology, it will appear that the logistician is true to his own purpose and does attain simplicity despite his apparent complexity. It also becomes evident that the number of postulates is a matter of little moment, mere fewness being a naïve interpretation of simplicity confuted as soon as uttered. Furthermore, this problem of simplicity has decided bearing on certain philosophic opinions now under discussion.

When we ask how mathematics is at present defined by logicians we are answered by Mr. Russell's enthusiastic statement: "The fact that all mathematics is Symbolic Logic is one of the greatest discoveries of our age,"¹ but as soon as we have begun to believe this, Couturat, whose work on the principles of mathematics professes to be nothing more than a *compte rendu* of Mr. Russell's, meets us with the statement "that no one has ever pretended that all mathematics reduces itself materially to logic, and that there is nothing more in a treatise of mathematics than in a treatise of logic."² We are told that mathematics

¹ *Prin. of Math.*, p. v.

² *Rev. d. Met. et d. Mor.*, March, 1906, p. 214.

is guided only by the rules of logic in making its deductions, — as is true of every other science and we are left to make out its differentia for ourselves.

When we ask, on the other hand, how mathematics proceeds, we are answered no less contradictorily. Following Dedekind's well-known saying that numbers are "free creations,"¹ we learn that mathematicians arbitrarily formulate hypotheses which serve to create systems and then proceed to discover all that is implied in them, that their task is the creative development of an ideal world. But over against this we have Poincaré, in the spirit of Kant, insisting that mathematical modes of development always depend upon intuitions.²

Logisticians might be expected to help us out of the difficulty, but the discrepancy between Russell and Couturat mentioned above shows that they have not done so. If we ask the reason for this the answer is readily forthcoming. The new logic has had great success in relating different branches of mathematics; geometry and algebra are no more to be thought of as relatively unconnected sciences, even geometry and logic turn out to be most intimate of associates,³ and in the joy of morphological success, the method bearing most closely on it is taken as mathematical

¹ *Was sind und was sollen die Zahlen*, S. vii.

² *Rev. d. Met. et d. Mor.*, Jan., 1906, pp. 17-34.

³ Cf. J. Royce, "The Relations of the Principles of Logic to the Foundations of Geometry," *Trans. of the Am. Math. Soc.*, July, 1905.

method, *par excellence*. We cannot, therefore, ask the logicians themselves to tell us in what mathematical method consists. This does not mean, however, that we should not go to their works to observe what they do and draw our own conclusions from them.

Pick up a study at random.¹ There are others which would do as well. It begins: "The well-known algebra, which forms one of the main branches of elementary mathematics, is a body of propositions expressible in terms of five fundamental concepts and deducible from a small number of fundamental propositions or hypotheses.

"The object of the present paper is to analyze these fundamental propositions, as far as may be into their simplest component statements, and to present a list which shall not only be free from redundancies, and sufficient to determine algebra uniquely, but shall also bring out clearly the relative importance of the several fundamental concepts in the structure of that algebra."

In the opening lines is the first blow to those who, in the usual fashion, interpret "hypothetico-deductive" systems as "free creations." We start with a "well-known algebra," an object presumably as definite as that of any science, about which we are to formulate hypotheses. We are told that certain fundamental concepts, met with in

¹ "A Set of Postulates for Ordinary Complex Algebra," E. V. Huntington. Trans. of the Am. Math. Soc., Vol. 6, No. 2, April, 1905, pp. 209-220.

its analysis, can be subjected to such conditions that the whole algebra can be constructed, or more accurately "reconstructed," from them. This does not look like "free creation." In fact, if we wish to make sure where the "ordinary algebra" came from, we turn to the history of mathematics and find it developed from number problems which in turn arise in close connection with observation of experience. Geometry, especially in Egypt, and in Greece before Euclid, remained crassly empirical and could make hardly any claim at all to the title of "deductive science."

The logician will reply quite rightly, that it is not the historically empirical origin which is of importance, but that if postulates might have been arbitrarily selected from which mathematics can be developed, the system is logically a free creation; it is not the fact that certain experience suggested mathematics to us that is of consequence, but the question of logical status, and if postulates, chosen haphazard, can ever be the basis of a system developed without reference to experience, the claim is made good and we have that anomaly, a purely deductive science. The opposition of rationalism and empiricism is not here in question, for whether the source of "principles" is the mind or objective facts, they are only manifest when reason is dealing with experience, and therefore the question of origin has no pragmatic bearing on the present problem.

Logistic has reduced the facts from which mathematics must start to the very primary ones of order, or even of contradictories.¹ But the first problem of a tentative system is to establish itself as free from contradiction. Thus the "well-known" algebra can be restated in terms of primarily ordinal concepts, but it is not recognized as mathematics until shown to be self-consistent. From this demand arises a check to the supposition that postulates might be hit upon, such that a system could be developed from them as a free creation.

Proved consistency and existence are usually understood as the same thing in mathematics and when one studies the method of proof, the reason is evident. The only known method for proving the consistency of a set of postulates is to exhibit something with reference to which they are all satisfied together. The consistency is thus made contingent upon the consistency of a known existing thing, or it may be, of course, a known set of existing relations as in the case of mathematics. But if this is necessary, how could a "free creation" establish itself as consistent and existent? If an entity is discovered which satisfies it and consistency proved, it might as well, or even better, be looked upon logically as derived from the study of that entity rather than from a chance happening upon provably consistent postulates. If some other way of proving consistency could be discov-

¹ Cf. J. Boyce, *loc. cit.*, *supra*.

ered the case might be altered but, as yet, the only other suggestion is to draw all possible conclusions from the premises and show them by individual comparison to be consistent, and in the case of postulates permitting an infinite number of deductions, such as those of mathematics, this is impossible. So "free creation" suffers a complete check, and mathematics begins to appear like any natural science which formulates hypotheses about entities, and tries to interpret them through concepts such that from certain hypotheses concerning these concepts all the phenomena intended can be deductively reconstructed. Mathematics has achieved greater success in this than other sciences, because of the comparative simplicity and great prevalence of the facts from which it starts.

There is, to be sure, one region of mathematical investigation where consistency and existence are unproved, namely, certain theories in relation to the transfinite, but these regions are the home of such staring paradoxes that mathematicians are not to be wondered at for feeling that somehow inconsistencies have crept into their definitions and that perhaps this branch of investigation is wholly illegitimate.¹ To show the full consequences of this would be an interesting philosophic task, but it concerns us here only to mention the one possible exception to the interpretation of

¹ Russell, "On some Difficulties in Theory of Transfinite Numbers and Order of Types," *Proc. Land. Math. Soc.*, Ser. 2, Vol. 4, pp. 29-53.

mathematical method which makes mathematics, like any other science, an hypothesis concerning entities of which we have knowledge of acquaintance, and to show that this part of mathematics has only a precarious claim to consideration.

Having established the consistency through showing the existence of his system, the logician is then led to consider certain traditional requirements of a good definition. In the first place he must show the uniqueness of it,¹ *i. e.*, any systems which may be taken as defined by the postulates can be put in one — one correspondence with one another. This is a complex form of the demand for non-ambiguity in the definition of a concept and is the common logical demand in all science. Similarly, the “well-known algebra,” taken in the consistency proof, can guarantee that the definition is neither too wide nor too narrow; the independence proof, that the postulates are every one necessary, is a further demand of elegance which under the name of redundancy is familiar to logicians. Mathematicians, then, thus far are merely reinterpreters of their world by defined concepts, much like other scientists.

A criterion of simplicity, however, appears in a fashion to give us interesting light on the very vague notion which this term usually denotes. Couturat² speaks as if it meant mere fewness of

¹ Cf. Huntington, *loc. cit.*, *supra*.

² *Rev. d. Met. et d. Mor.*, March, 1906, p. 211.

postulates. But anyone not sufficiently convinced by his own "natural light" of the futility of this, considering the difficulty of saying when postulates are in their simplest form, need only to turn to the literature of the subject to find the greatest variety. To cite a few illustrations from Dr. Huntington: real algebra is defined by sets of from ten to twenty postulates,¹ positive numbers by four and by six postulates,² and the algebra of logic by sets of six, ten, and nine postulates,³ of which last it is probable that most logicians would select the set of ten as simplest because it makes use of the subsumptive concept which the others define through equality and addition. It seems indisputable that no rational criterion of simplicity can be based on the number of postulates involved.

A criterion of simplicity which readily suggests itself is harmony with previous knowledge and stock of ideas. If accepted, it leads to the criticism of logistic mentioned above; namely, that the clear is derived from the obscure, for clarity and obscurity largely depend upon the stock of notions in the mind to which the new knowledge comes. But such a criterion can never be of value to science because it can never be formulated for a specific instance in such fashion that all men can accept its verdict. The discussion between Cou-

¹ Trans. Am. Math. Soc., Vol. 6, No. 1, pp. 17-41.

² *Id.*, Vol. 3, No. 2, pp. 264-284.

³ *Id.*, Vol. 5, No. 3, pp. 288-309, July, 1904.

turat and Poincaré, to which reference has been made, is partly instigated by this motive and so far remains fruitless. We need, then, for science, some more objective criterion.

One which readily suggests itself to mathematicians is that of relative freedom from immediate sense data. This criterion is, on the surface, one which leads mathematicians of Peano's type to prefer an entirely new statement of geometry to Euclid's, even if Euclid's were corrected and in proper form. It is in conformity with the familiar principle of thought economy and is certainly one of the factors which may enter into a judgment of simplicity. This is especially true in a science such as geometry or mechanics where sense data play an evident rôle, thus the claim of Herz over Mach is not that his mechanics is more correct, but that it is more simple. We have not as yet, however, an objectively valid test which can be universally applied, for if we consider such systems as the algebra of logic, mentioned above, or any other of those examples, we are marooned. We must either consider all expositions equally simple, or we must, to logically justify a choice, seek some criterion of simplicity not yet disclosed.

And there remains a fourth choice which seems to solve the problem more satisfactorily than any of the others. It is natural to call a concept or a thing simple, when it fits easily into its place and no special effort is required to make the use of it

which is intended. This is making the concept depend upon "purpose," but it is objective in so far as the purpose can be determined, with respect to which a given concept is defined. Applying this to the mathematics of the logisticians the criticisms disappear. The purpose is primarily morphological and therefore a system of mathematics is considered to be in its simplest form when expressed in such fashion that its relation to other systems is clear. The aim is "to bring out clearly the relative importance of the several fundamental concepts in the structure of the system"¹ and to make the system easily relatable to others. But also the point of view of the critics of logistic is clear. Most of them, like Poincaré, are developers of mathematics, "practical" mathematicians they might be called as over against the "contemplative." They want primarily to solve problems of mathematics and, therefore, for them there is no need of beginning geometry earlier than with such concepts as Euclid uses. The geometry of Peano is for them as cumbersome as Euclid is to those trying to solve the morphological problem, but to these latter its concepts possess a delightful simplicity. What is to be kept in mind is that both problems, that of the "practical" and that of the "contemplative" mathematicians are legitimate, and while the most comprehensive demand should construct a system satisfactory to

¹ Cf. Huntington, *cit.*, *supra*.

both, subjective feelings of attraction or repulsion should not pervert the sense of their equal right to consideration.

In brief, then, the method of mathematics, as it is completed by the logisticians, consists in the formulation of a set of hypotheses which are true together of some known entity, and in subjecting these hypotheses to such tests as logicians impose on tentative definitions of concepts; that they are consistent, neither too broad nor too narrow, and simple in a definable sense. The fact which seems to have been neglected by mathematicians is that the proof of consistency, by demanding an exhibition of something already known, puts a check on the "free creation" theory of mathematical systems and places them logically on a level with the concepts of other sciences which all aim at hypothetico-deductive procedure. The chief difference of mathematics seems to be that because of the importance and frequent occurrence of the comparatively simple facts which are sufficient to suggest its concepts, a degree of success has been obtained of which other sciences can as yet only dream.

It is, therefore, clear why the philosophers of olden time were carried away by the example of mathematics. A science which could do so much for herself must be possessed of a surprising method. And so they undertook to follow in her footsteps, only to meet with failure, but not be-

cause of a defect in her method, but because, not yet understanding herself, she could not be understood by them, but presented to them an illusory appearance of purely deductive progress with the outward character of which they were impressed, and the real nature of which escaped them. A merely deductive mathematics would be of as little value as a "freely created" philosophy. The old *more geometrico* threw away a vital part of the necessary and natural scientific procedure and so it failed of its purpose. When it was dead it was not hard to see why the problem was not again forced upon philosophers; in their own fashion and from their own point of view they have been becoming scientific, and have outgrown the interest by independently adopting the essence of scientific method. In his paper on Avenarius,¹ Dr. Bush speaks of the demand for the existential predicate as the feature which still serves to distinguish metaphysics from science; but if one pauses to consider the significance of the existential predicate, it seems to be reducible to an hypothesis as to the legitimate extent to which the other hypothesis of metaphysics applies. All science must turn upon some existence, and a science² as well as a metaphysics — and there can be such — which turns to a merely imagined world,

¹ "Avenarius and the Standpoint of Pure Experience," *Arch. of Phil., Psy. and Sci. Meth.*, No. 2, Nov., 1905, p. 3.

² Cf. "Whitehead on Mathematical Concepts of the Material World," *Phil. Trans. of the Royal Soc. of Lond., Ser. A.*, Vol. 205, pp. 465-525.

is a dream-play, of value only as play is of value in the training of powers to be turned to more serious tasks. But if there is only a difference in range of applicability of hypotheses to distinguish metaphysics from the sciences, all formal barriers vanish, — an excellent thing if recognized by metaphysicians.

Though independently discovering the essentials of method, philosophy has still something to gain from the study of mathematical procedure; for, by virtue of its symbolism, mathematics can express itself with a certain clarity unattainable by other sciences. An attempt at precise imitation of this was one of the stumbling-blocks in Leibniz' path, but an approximation of the form has been used most successfully by Mr. Russell in his critical study of Leibniz. A very fruitful thing should be to point out in a precise fashion the bearing of scientific method on the prevalent faults of philosophic systems, and certain possible meanings it has for different systems, for while philosophers are touching upon all these things, they do not seem to have grasped them in their full significance. A consideration of such points as bear on philosophic criticism follows.

II

A metaphysics constructed on the lines of scientific method becomes a new and distinctly different sort of thing from the metaphysics of former times, as is evinced by the different flavor of the disputes of scientists from those of philosophers, but if scientific method is actually applicable to philosophy, it should define more systematic analyses and criticisms than have existed hitherto. The nature of philosophic categories is such that the best we can hope for is an approximation, but this is not to be despised in our present state. It is intended here to observe what some of these lines of criticism would be. It is not a question of the first formulation of philosophic data, which must be gotten from the study of experience, but of the critical reconstruction of such data into a system which can fairly be called a philosophy, and which can support a claim to scientific consideration of its pretensions.

The notion that philosophy is an hypothesis is not a new one, but it is rarely taken in the frank sense that a scientific attitude demands. Ribot says¹ that metaphysics "is an hypothesis built on hypotheses," and continues, "but the hypothesis, which in science is always provisional and revocable, is here the supreme reality, the fixed

¹ "Essay on the Creative Imagination," p. 252.

position, the *inconcussum quid*”! This is, however, just what no philosophic hypothesis can rightly claim to be. Rather, inasmuch as in science, hypotheses are frequently open to laboratory tests, while in philosophy they are not, philosophic hypotheses should only timidly claim ephemeral consideration, while those of science which have frequently undergone the tests of experimentation and prediction have something of the *inconcussum* about them. A somewhat confusing circumstance in philosophy, which renders unclear the nature of certain philosophic hypotheses, is the curious way which some of them have of voting for themselves to insure their own validity, a trait which is familiar through its exposition in Professor James’s “Will to Believe.” No other scientific hypotheses have this character. Over against the truth that temperaments mould the philosophy of men, lies the counter truth that a philosophy, which conforms nearly enough to a temperament to be entered upon, has a certain rigidity whereby the temperament is warped to fit the misfit parts of it, as the foot shapes itself somewhat under the stiffness of a new shoe, until there is a verification of it which it has itself produced. Were it not so philosophy would be an inefficient factor in life.

The pragmatists have recognized more clearly than others the hypothetical character of philosophy, but the critical tone of their writings shows

that they do not realize its consequences to compared systems. In the first place, it may be impossible to decide between rival hypotheses which is the truer, and, in fact, it is quite possible that two systems should exist such that no absolute criterion of choice is possible. This case has been dismissed with the statement that two such systems are identical, but this is too simple an answer to the problem. It is possible that persistent and widely divergent "Weltanschauungen" such as "realism" and "idealism," "relativism" and "absolutism," maintain themselves through the fact that, although distinct hypotheses, each, if properly formulated, is able to deal adequately with the facts of life; it does not follow that by some hocus-pocus they reduce to the same thing. When the criterion of simplicity is interpreted for philosophy, it will suggest that the divergence may be due to different purposes from which philosophers set forth, and that the different views may be the legitimate outcome of these. The problem of finding an all-comprehending purpose, and its philosophy, if possible, remains as yet unsolved.

Philosophers, for the most part, intend their systems to be self-consistent, although attempts to demonstrate consistency are conspicuous by their absence. Many¹ do not attain it, even such men as Kant, Fichte, Schelling, Leibniz, and many others, and it is not inconsistency in details but

¹ Cf. Miss Calkins, "The Persistent Problems of Philosophy," p. 10.

in the main principles, the leading ideas of the work, that is here meant. When this charge can be brought against the foundation of a system and not merely against the details of working it out, it is important, because no inconsistent philosophy can fulfil its function in a science.

Since "free philosophic" notions are not in vogue the philosopher must limit himself to the well-known world of human experience. Rationalists, however, are wont to be too enamoured with principles to consider whether the world developed from them is or is not the world of human life, and empiricists too often fail to get philosophy beyond the stage in which it collects and describes facts, or at most the tentatively hypothetical stage of science, and so do not attain the hypothetico-deductive stage which is its final aim. The empiricist, who is at the same time critically reconstructive, or the rationalist, who is interested in empirical applications of his hypotheses, is the best type of philosopher, and as long as either is thorough, differences in the practical outcome due to these aspects of their point of view can be reduced to a negligible minimum.

After the consideration of consistency, the problem for a philosophy is to give an adequate account of facts, but an account which excludes facts the admission of which would not be correct. In both of these respects, adequacy and selectiveness, many philosophers are found want-

ing. Cases of the former defect have often been more or less clearly noticed. For example, when philosophers start from the consideration of a narrow region of fact, such as Kant's right- and left-handed glove, facts of religious life, or of natural science, a system is likely to arise adequate to the region in which it has its origin but inadequate to other regions to which it must apply to attain philosophic universality. Kant is extremely successful when he is considered merely as an interpreter of the problem of space, time, and mathematics, but when it comes to the interpretation of moral and æsthetic facts an addition of assumptions is needed which not only refuses to fuse with the natural philosophy but also works it into unclearness and leaves the system as a whole deficient. Similar cases can readily be called to mind where moral life forms the starting point and the philosophy of nature is the sufferer.

The second of the above mentioned defects, that of setting forth a philosophy admitting more things than is really desired, is less clearly recognized but is probably quite as prevalent as the other. Hamlet's remark may now be reversed; there are more things in some philosophies than are dreamt of in heaven or hell. Perhaps this defect may be traced in the difficulties of Absolute Idealism in dealing with the problem of evil, for in the assertion that the absolute becomes more perfect through the evil it transcends, we

seem to find implied that it is the function of evil to contribute to the perfection of the absolute, to perfect it as an overcomer, and that therefore evil should be cherished as carefully as good. Looking toward the absolute we can say "dark and light are both alike to Thee" and praise those willing to be damned for the glory of God. Of course, this is an interpretation which no absolutist would accept, and yet it is hard to show just what limitations have been put on the theory to exclude this interpretation. This, then, is one of the cases where the problem of limiting a system to the facts which it desires to include seem to be pertinent. The insidiousness of this type of error is so much the greater, because of the wide inclusiveness which philosophy, as a scientific hypothesis, must have, and also philosophers can often comparatively easily confine attention to the development they have made explicit, and divert it from what is also implied, but left implicit.

Let us suppose now that a philosophy has been formulated without any serious technical imperfections of the types mentioned above. Have we any reason for thinking there can be only one such philosophy, or that if there are several different philosophies, they reduce to an identity? The name "instrumental theory of knowledge" suggests an analogy; one can open an oyster with a rolling-pin, although a knife would do much better, and we can split kindling with a hatchet

or an axe. In general, there are several different sorts of instruments with which any operation can be performed. Identities exist only with respect to purpose, but even if an invariant philosophic purpose could be defined, there might be genuinely different instruments for accomplishing this purpose. If the purpose were rigid for all time, it is true those differences would not be worth considering, but when, as is actually the case, the purpose with respect to which the identities are judged is a constantly fluctuating one, and sure to be modified by any marked scientific advance, these differences are of importance, and there appear to be no persistent pragmatic identities. When I purpose merely to start the fire, the hatchet or the axe are identical as wood splitters, but when I add consideration of ease, haste, or of the quality of the wood, the neglected differences assert themselves. Thus of several philosophies, unless they ask meaningless questions, there may be a choice based not on the possibility of one or the other fulfilling the function assigned to it, but in the ease with which it fulfils the function. This is a factor in the decision which leads a man to one or another of the great world views, for no mere sentiment of temperamental "affinity" would keep alive a non-workable philosophy.

The choice between instruments for a given task is based on convenience, that between correct scientific theories is based on simplicity, which,

perhaps, means the same thing. Inasmuch as pragmatism has opened the way for relative truths, systems may be selected for serviceableness with respect to two characteristics of truth, (1) those that contain the least untruth, (2) those the untruths in which are least involved in the particular application desired. The latter sort are now in question and this is why slight differences of purpose make themselves felt.

In mathematics it was found that simplicity also related itself to purpose, and that while attainment of freedom from sense data was sometimes a factor, the more general purpose split itself into a desire to discover morphological phenomena and a desire to discover new theorems and systems, these two points of view being represented by Peano and Poincaré respectively. As the former of these attitudes was called "contemplative" and the latter "practical," inasmuch as they associated themselves with two distinct types of minds, a similar division is to be expected amongst philosophers, but, as in the case of mathematics, both types are essential to science, and the problems of neither should be called illegitimate.

An ideal philosophy, or an ideal science, should satisfy both motives, but as that could not happen without all problems being solved, it is not to be looked for, even if it is to be thought desirable. A philosophy may then, as scientifically correct, be true, and satisfy one of these types of mind

more readily than the other, and so be felt as simpler by certain philosophers. It would be unfruitful criticism, however, for its advocates to deny the other type of workers' legitimacy of effort, even if their work inspired in the critics little warmth of interest or sympathy. Of course each type must offer a solution of all philosophic problems, but it is to be expected that each will have a somewhat awkward tool when tested by works other than that for which it was directly intended.

Let us take, for example, the distinction recently made by Professor James between the tough and the tender minded, a distinction which certainly exists as a factor in the differentiation of individual temperaments, though it is not as satisfactory a differentiator of philosophies as our criterion of simplicity. The Absolute Idealists between whom and Professor James the distinction is made to apply, may often assert with vigor the justification by their philosophy of freedom, moral responsibility, and love of adventure. Whether or not they are conceded to show that their systems actually do justify these things, it remains true that as temperamentalists some, at least, desire them. Let us see how the distinction between the "practical" and the "speculative" enables us to interpret the difference.

Professor James, like Poincaré, is primarily interested in the workings of philosophy in its

immediate application to the problems of life, while Professor Royce, as the type of the Absolute Idealist, is primarily interested in the contemplation of the world as embodied in philosophy, in the faith that if philosophy is correctly developed the solution of practical problems must follow. Take the result depicted in each solution of the problem of evil. The former sees that from the data at hand in our daily experience no man can speak authoritatively as to the upshot of the world, whether good or evil will finally triumph. Consequently, he declines to consider the problem further and, being healthy minded, assumes the possibility of the victory of the good and, with trust in his fellow-man to vote on the right side, plunges into the fray. The possibility of evil triumphing, while nominally admitted, does not impress one as being actually felt.

For the absolutist the question takes a different form. We are not now trying to do something with philosophy, but we are contemplating the picture of the world which it presents to us. The whole time span, to use Professor Royce's term, is held before us with all its manifold events in a single instant. Is the picture good or bad? To a healthy minded man, like Professor Royce, there is no genuine question. To contemplate the picture as evil would be the same as for Professor James to insist upon failure. The advantage here is on the practical philosopher's side,

for he can refuse to answer this speculative question, which demands an answer from the "contemplatist." The answer once placed, it becomes the problem for the philosophy of an absolutist to justify the adventurous and striving character of daily life, which he, no less than the "practical" philosopher, feels. The contemplative motive in itself is irreproachable. There is no reason why we should not ask for world view to satisfy contemplation, although the solution of certain problems may then be harder to give than when the question is otherwise put.

In the above illustration the advantage of simplicity seemed to be with the practical motive, but it is not so with all problems nor with all aspects of the problem of evil, if we admit Professor James's statements as to "moral holiday," in which the absolutist is justified and which he must just take! With certain other problems this change of advantage may be more striking. This fact should lead to that understanding of different philosophic exigencies and problems which, though not inspiring tolerance for imperfect or defective solutions of problems, justifies the demand for a solution on the same grounds unless the grounds as well as the solution can be shown defective. Too often we have criticisms of the solution of problems, merely on the ground that they can be solved more easily from some other standpoint, without asking whether an an-

swer could rightly be demanded from the same grounds as before; but to continually change from one notion to another, or from one set of fundamental hypotheses to another, is death to progress; a difference in fundamental hypotheses is not necessarily a difference of *value*, with respect to solutions of philosophic problems.

As with the two sorts of mathematics, it is the contemplative alone which can present a system in ideal form, but it is the other which can best collect and arrange the materials for the system. There should be, as in history there is, an alternation of these two types of philosophy, periods of discovery and partial assimilation of facts, and periods of critical reconstruction in which these facts are weeded out and worked over into good scientific form. The coming to light of new facts always disrupts a period of the latter sort and quiescence of discovery, or the arrival at a saturation point, always reinstates it again.

If philosophy is to be taken as a science, the question arises as to its place amongst the other sciences from the point of view of perfection of development. It is quite common to assert that the aim of all science is to be mathematical, and it is consequently implied that mechanics and physics are on this account especially advanced amongst the sciences. This view seems to be a confusion; to be mathematical in method, and to apply mathematics to problems are two entirely

different things. The former turns out to be a rational aim, but the latter is not so evidently desirable.

There are, perhaps, three stages of science which are of note, first, the pure empirical, in which the scientist devotes himself to describing and classifying his facts; secondly, the merely hypothetical, in which hypotheses to connect the described facts are proposed, and lastly, the hypothetico-deduction, in which the hypotheses have been sufficiently verified so that they may be taken together as premises, and new conclusions deduced which are found to be also verified. Of these stages, the social sciences are for the most part in the first, showing only spurts to the hypothetical; the natural sciences are in the hypothetical stage with occasional spurts into the hypothetico-deductive; but mathematics and philosophy, the sciences least dependent upon the details of the concrete facts of experience, alone have attained the third stage in scientific development, and of these, philosophy only attains it in its critically reconstructive periods. Strangely enough philosophy, which is now striving self-consciously to be scientific, has unconsciously reached a high development of scientific form. The newly conscious impulse is but a redirection of the attention upon one aspect of scientific process, the inductive, which was left in the background by our immediate predecessors.

To sum up the conclusions of this paper in the light of our original problem, the mathematical method, for which the founders of modern philosophy yearned, is nothing else than universal scientific method, and the apparent neglect of mathematical method by recent philosophers is to be explained by the fact, that while mathematics has been more or less in the dark as to her own actual procedure, philosophers have been discovering the nature of scientific method independently, and have attained considerable proficiency in its use.

The recognition of this fact serves to throw light on some sources of difficulty in philosophic systems; errors in systems can be distinguished from differences arising from different points of view, and the criterion of simplicity indicates the possibility of still further differences which can exist in such form that they may never be done away with even if all problems of philosophy are finally resolved. And this last sort of differences, moreover, does not lead to any justifiable prejudice as to the worth of different philosophic systems, although we may value them differently according to the facility with which they handle those problems by which we are individually most pressed.

PRAGMATISM IN ÆSTHETICS

PRAGMATISM IN ÆSTHETICS

BY KATE GORDON

THE argument of this paper is that æsthetic experience illustrates and confirms the teachings of pragmatism. It is stated that (1) the work of the artist is to objectify new or striking emotions, that (2) the subject of the æsthetic enjoyment accepts these emotions and acts out their meaning, and that (3) the ultimate meaning of beauty is to be found in concrete acts, and the function of art is to produce new experience.

Pragmatism has been defined as: "The doctrine that the whole 'meaning' of a conception expresses itself in practical consequences, consequences either in the shape of conduct to be recommended, or in that of experiences to be expected, if the conception be true; which consequences would be different if it were untrue, and must be different from the consequences by which the meaning of other conceptions is in turn expressed. If a second conception should not appear to have other consequences, then it must really be only the first conception under a different name. In methodology it is certain that to trace and com-

pare their respective consequences is an admirable way of establishing the differing meanings of different conceptions."¹ For pragmatism, as I understand it, "significance" is a much more engrossing category than is "existence." The pragmatist looks to the event, the outcome, the result in experience of a conception or of a thing. Dewey² says that "things . . . are what they are experienced as." Thus, the writing pad is the to-be-written-upon; a mountain is the looked-up-at, the driven-over, the to-be-tunnelled-through, etc. To put it negatively, that which amounts to nothing for experience is nothing; that which is somehow "there" but never by any chance "here" for anybody is pure fiction.

Perhaps the difference between pragmatic and other attitudes can be illustrated by the type of reality and worth which they would assign, let us say, to the character assumed by an actor on the stage. There is a popular opinion that the actor who is playing a part is less himself at that moment than one who assumes nothing, the part is regarded as something foreign, which more or less obscures the real character. The pragmatist would hold that assuming a character is as good as being it if one assumes it thoroughly, and the more parts one undertakes the more is one a personality. In "The Tragic Muse" the young actress said to her interlocutor: "And do you think I've got no char-

¹ "Dict. of Phil. and Psy."

² *Journal of Phil. Psy. and Sci. Method*, Vol. II. No. 15.

acter?" to which he, pragmatically, replied: "Delightful being, you've got a hundred!"

Significance and meaning are terms which have no place in a purely mechanical conception of the world; in nature one thing does not "mean" another; things do not "signify" except in a purposive order. All things, according to pragmatism, are either hindrances or furtherances to some purpose. (It should not be necessary to add that in making all things relative to purpose one is not reducing everything to psychology. Certainly there are purposes in ethics, in logic, in æsthetics, in sociology, and in what not?) Given a purpose or an activity, it is possible to analyze in it certain termini, an end towards which, and one from which, the process moves, but it would be quite perverse to say that these points "determine" the process in the sense of being independent objects which exert compulsion upon it. Rather is it true that the process is the ground or determining source of the termini. Instead of two points determining a line it is the line which determines the points. This is in harmony with the assertion that objects are constituted by purposes.

This brief statement about pragmatism is not intended for an argument, for I do not understand that an ultimate philosophical attitude can be argued. Pragmatism is the *disposition* to look for final explanations in terms of purpose, and for reality in experienced satisfactions. With this dis-

position I should like to approach the field of æsthetics. Æsthetic discussion may be classified for this purpose under three general heads: (1) the artist's standpoint; what are the motives to art production? what is meant by "self-expression," and by "objectification of emotion"? in what way does art "relieve" emotion? (2) the standpoint of the appreciator or admirer of art; what is the nature of æsthetic enjoyment? what is the meaning of "internal imitation" and the motor elements in æsthetic consciousness? the significance of "disinterestedness," "objectivity," "immediacy," "absorption of subject in object"? (3) the origins and functions of art. These questions can here be touched of course only in the most summary way.

I

The term "artist" should not be limited, in æsthetic discussion, to mean merely the acknowledged masters or even the whole professional class, but should include everybody who has seriously tried to express his emotion through one of the recognized media of artistic production. Hirn¹ says: "If the notion of art is conceived in its most general sense, every normal man, at some time of his life at least, is an artist — in aspiration, if not in capacity." The standpoint of the aspirant must

¹ "The Origins of Art," Chap. II.

indeed have something in common with that of the successful master, for the latter is considered to have expressed not only his own feeling but also that of others.

The motives to art production may be extremely varied; the artist may work for money, for love, out of emulation, or fear, etc. (just as among primitive people arts were practised for the sake of conveying information, of stimulating fighting and working power, of exercising magic influence, etc.), without having the product necessarily vitiated as a work of art. Yet the genuine art motive, that which is there apart from any specific external pressure, is somewhat different from any of the motives mentioned. The art-impulse has been derived, according to different authorities, from the tendency to imitate, the tendency to attract by pleasing, to employ surplus energy; from the desire for self-exhibition, for self-expression to relieve emotion, and to objectify feeling. It is allied to the instincts of play and of sociability. These tendencies overlap each other and probably all are operative in artistic activity, but the categories of self-expression and objectification of emotion give perhaps the most comprehensive and just characterization of the meaning of the art-impulse. When one experiences great pleasure or joy, the first wish is to keep it up just as it is, but that failing one is impelled to express the experience by portrayal, to seek an image which will revive the feel-

ing. Not only, however, is this true of joy; for when an uncommon terror, or a peculiar grief, has been endured there is a wish not to let the memory of it wholly die, we want to record the fact in order sometime to find the interpretation of it. We may say in general that whenever there is a striking emotional experience, or a feeling not fully grasped, there is a desire to express, fix, and objectify that feeling, to put it into permanent and appealing form.

There is always a social reference in this desire for expression. Often this reference is patent, so much so that one writer makes the desire "to attract by pleasing" the basis of art. The desire for permanence and objectivity is, however, itself ultimately social; for only that which makes an impression on the social order is truly rendered objective or permanent, only that which appeals deeply to people is the monument more lasting than bronze. The artist in working for others need not mean by society any definite living person or group of persons, he may figure it as posterity, an ideal group or an ideal person, or even himself in the character of critic, but the reference is there nevertheless and remains social in its essence. With a sincere artist this wish to impose his experience on others is not an undue exaltation of himself but is the legitimate and normal desire to establish and preserve whatever novel emotions or supreme moments his experience may have held.

When these moments are once translated into a medium which will, as it were, be responsible for them then an important part of the artist's desire is accomplished. He may rest relieved by his work of art. The art-impulse is imitative in the sense that it tends to reproduce or iterate an experience which the artist has had; it is self-expressive and self-exhibitive in that the artist stamps his idea upon society; it works off surplus energy in the sense of relieving emotional pressure. Its spontaneity together with its constructive and its imitative elements suggest the play-instinct, while the instinct of sociability is at the bottom of the social reference mentioned. The complete objectification of emotion is an end and a satisfaction of the art-impulse, but, as we have seen, this very end implies that the emotion felt by the artist is to be taken up into the social process and lived out.

II

The second group of questions involves a discussion of the standpoint of the observer, or better, the admirer of art. The generally current descriptions of his state of mind say that his pleasure is disinterested, objective, and universal, that æsthetic value is immediate rather than discursive or "consecutive," that art widens the sympathies, that it has the form of purposiveness but represents no

purpose. Some writers add that an element of pain or melancholy is aroused by beauty.

The disinterestedness of æsthetic enjoyment is expressed also as a detachment from desire, as a stilling of the will, impersonal contemplation. The immediacy of æsthetic value is supposed to distinguish it from ethical or logical or economic values; for these latter may be means to an end, they may be valid *because* they contribute to some other thing than themselves, whereas in beauty there is no ulterior ground, no reference which accounts for the value. Further, the admirer of beauty feels the value to be objective and universal, that is, he feels his pleasure to be "the quality of an object." Beauty he holds to be sharable, and to be addressed normally to a group rather than to an individual. The sensuous element in beauty is also some guarantee of its objectivity; the beautiful is always something which we may see or hear or touch, which gives resistance and stimulation to the senses. The fact that art widens the sympathies follows from its universal character.

It is not, I think, sufficiently dwelt upon in æsthetics that every moment of æsthetic susceptibility is to some extent a risk and an adventure. The absorption of the subject in the beautiful object is a subjection of mind analogous to a mild hypnosis. Our motor responses and "internal imitations" are often, possibly always, the basis of our interest, the means to our emotional appre-

ciation, and by these we accept and realize the suggested feelings. Unlike a logical, an ethical, or an economic absorption in which propositions and plans of action are considered, and a judicial attitude preserved, æsthetic absorption is in a *thing*, an object whose dynamic possibilities are not clearly known, it is more of an unconditional surrender, and more like encountering a person than a principle. The work of art may stimulate interests and reactions which are most unlooked for. That is where the adventure comes in.

The characteristics of the æsthetic consciousness, then, are a remoteness from immediate self interests, a suggestible and imitative attitude towards the object, and an allegiance to a reality felt to be independent of oneself. But back of the producer's desire to objectify emotion and back of the admirer's acceptance of it after it is objectified is the desire of both for the emotion itself. In every normal person there is an instinct for excitement, a curiosity about the untried and a liking for whatever is novel and stirring. It is this which sets the artist hunting for new emotions to objectify, and this which first draws the observer into the neighborhood of the work of art.

III

Mediating between the producer and the admirer stands the work of art itself. It is the end term of two processes, being the goal or ending point of the artist's endeavor, but the starting point or at least the point of redirection for the activity of the admirer. An inquiry concerning origins and functions of art is an inquiry for the other two termini of the art process — the beginning of the art-producing and the end of the art-enjoying emotion. If art production is based on emotion we have first to ask where the emotion comes from. We may distinguish a psychological and a social origin for it, though we recognize that for primitive mind the individual and social interests were not clearly differentiated.

The theory of emotion¹ which regards it as a phenomenon of interrupted habit, states that emotion is the consciousness of conflicting impulses. Impulses which meet with no resistance get carried smoothly into action, and the rule is that their owner knows and feels very little about them; but let an impulse be checked, or rather — since only an impulse can check an impulse — let there be a conflict between impulses and the affair appears in consciousness and appears an emotion. In feeling, at least, the theory would say that strife is

¹ Dewey, *Phil. Rev.*, Vols. I. and III. Cf. also Angell, *Psy.*, Chap. XIX.

the father of things. Imagine a primitive man approached by an enemy; his fighting instinct is aroused and he starts forward to make an attack. If resistance is feeble the act of destruction is shortly completed and does not rise far into the emotional or ideational level. But if the enemy assumes a terrible and threatening air the act of destroying him is at least postponed a little. The instinct of fear is touched in the aggressor and the impulse to cower and run tends to check his attack. At once there is emotional stir, the fighting impulse reined-in becomes conscious anger, the overt act thus blocked remains a mere attitude, and the result is an angry man in a fighting posture. The most desirable thing at that moment in the world would be some means of fixing his resolution and augmenting his strength. Now the primitive person who wants to do something but dares not, finds a satisfaction in going repeatedly as far as he does dare. Repeated threats and feints and posturings thus take the place of a real fight. I believe that such a situation would account psychologically for the origin of that fundamental form of art — the dance. When an act has been intercepted the actor records that moment, and in a sense objectifies his emotion, by the repetition of that part of the act which he is able to perform, namely the attitude. If the posture were repeated often enough to fall into a rhythm it would then constitute a dance — a work of art. According to

this account, the objectification of emotion is an objectification of conflict, and whoever preserves an emotion preserves an ungratified impulse, a problem unsolved or a purpose unfulfilled. The performance of mimetic dances *after* a deed is complete, a victory won, we may, it is true, ascribe to the desire to revive and prolong the joy of success, but this type of commemoration also has a reference to the future. The memory of one feat is kept as a stimulus to the next, and also as a means of attaining social consequence.

As to the social origins of art, we are told that the different forms of art were evolved as useful accessories to certain definite ends, that the function of the artist was to direct and incite the efforts of a social group. The praesul or group leader in beating out the rhythm for concerted action, and in performing a pantomime of the movements to be made, furnished concrete imagery for his group — the stimulus of a literal example. In their historical beginnings the arts were useful devices for attaining success in specific types of activity. In the interests of the fight and the hunt, of love and religion, of magic and work, wherever, in a word, primitive man wanted to exert his power the arts came in to stimulate and enhance it. The status of art seems to have been purely instrumental. Bücher¹ says that if one asks a Bulgarian laborer to sing a harvest-song in winter time the answer is sure to be:

¹ "Arbeit u. Rhythmus."

“Es sei eine Schande, ein solches Lied zu singen, wenn nicht die Zeit dafür sei.” The function of art, then, was not at first so much a stilling as it was a prodding of the will.

The function of modern art is of course a separate question. With the big changes that have come in our social economy, one would not expect to find so important a function wholly unchanged. In the modern social order occupations and ideas are much more numerous in kind. With the division of labor has come the multiplication of types, and the more democratic ideal. Our ideal community is not one in which every man is a hunter or a warrior with the biggest one as leader, but rather a community in which every person is doing something a little different from every other, one in which each member holds a position and performs a service which is unique, and therefore one in which every one leads in something. Now in such a society of individuals what place would there be for an artist of the primitive sort? With everybody wanting to do a different thing it would be impossible to be a praesul and to give to each a literal example of what he was to do. As a matter of fact the modern artist works as a rule for a public not present to him in the flesh, and often for persons whom he will never see. This, added to the fact that his public represents widely divergent interests makes the notion of personal example quite remote. And yet I

believe that with one very important difference the function of modern art is essentially the same with that of primitive art. The difference is that modern art instead of giving a stimulus to a specific act gives a stimulus of a much more general kind, and leaves each individual to live out for himself the meaning and the end of it.

To assert that the function of art is to stimulate to ends, of whatever sort, is, on the surface anyway, a direct contradiction of the idea that art quiets the will and absolves from desire. Now the terms "disinterestedness" and "freedom from desire," and the notion that certain values are immediate and not grounded on absent things do stand unquestionably for a certain truth; but, if I understand what that truth is, they express it badly. Literal disinterestedness is an artifact. What the term is used to signify is that some interests (not all) are in abeyance. The whole point for æsthetics is to distinguish which interests are ignored and which are thereby fostered when one contemplates beauty. The difference seems to be one of small present interests as against larger and more remote ones. Art, though it no longer sets one on to instant deeds, has yet a far-reaching influence upon action. Thus there is no one particular act which a plaintive melody could be relied upon to stimulate, but it might very well induce a mood of tenderness or pity, the results of which, though not known, we must not suppose lost. A beautiful

object, even a familiar one, has something in it always novel and re-creative, and in this sense represents a change from preceding experience and interests, so that the beauty seems not to depend upon the preceding interest for its value. It is not apparently mediated or arrived at but given, is not like an "answer" in arithmetic which, insignificant by itself, needs the preceding problem which it answers to give it a meaning. To say, however, that beauty is really an "immediate value," or that its meaning is completely expressed in its form is a contradiction in terms, and a denial, it seems to me, of the most vital element in all æsthetic moments. Value, meaning, significance, these must always by definition imply a standard or involve a reference. The pragmatic attitude on the subject would be that the meaning of a beautiful object is to be sought not in itself but in its final reference to concrete acts; that the æsthetic moment, like any other, must be placed in a purposive order, that there is no such thing as a completely given value.

Evidence is not wanting that the person going through the æsthetic experience demands a reference to some purpose. Recent theories regard æsthetic consciousness as a consequent rather than a cause of art production; they say that æsthetic appreciation of natural beauty is developed by first appreciating art. The æsthetic consciousness would thus be a moment not given by nature but

determined by art, that is, developed within a human process. Again, in modern theory, the conception of the characteristic or the significant is given chief place in the definition of beauty, and the categories of congruity and fitness are also considered relevant. Now nothing is merely characteristic, etc., it is characteristic or significant *of*, congruous *with*, fit *for*. All those notions involve a reference. Finally, it comes out in experimental tests on æsthetic problems that the isolation of the æsthetic object is a source of disturbance to the subject. Persons asked to choose the more beautiful of two colors, the more pleasing of two circles of different size, and the better of rectangles of different proportions often find it unnatural and difficult to make a choice irrespective of some use to be made of the color or the form. Some say that they have no "favorite" color in the abstract, but have different favorites for different purposes. One person among my subjects who had been trying to choose among rectangles (including the golden section) at last exclaimed: "Heaven knows I would be glad to yearn for one of those things to please you," but declared it impossible to like them apart from some imagined purpose (*i. e.*, as used for a picture-frame, a book-cover, etc.). My experience has been that questions like "Which is longer, or darker, or bluer," etc., are accepted and answered as a matter of course, but that the questions "Which is better or more beautiful, which do you prefer,"

are troublesome and often call out the demand for further explanation. Another fact which suggests the dependent nature of beauty is the part sometimes played by the object's position in a series of objects. Martin¹ found that changing the relative position of simple curves could change their relative æsthetic value. In unpublished tests of my own on circles of different sizes and rectangles of different proportions the same point came out, the choice seemed to be affected by the position which the figure held in the series presented. For example, in a graduated series lettered a, b, c, d, etc., figures a, b, and c were shown together and the subject chose *b* as most pleasing; then b, c, and d were presented and the subject chose *c*. Now since b and c were together for comparison both times it would seem that it was not the figure itself but its position which determined the preference. In this example the middle figure was chosen both times.² These facts point to the conclusion that æsthetic experience is less able to stand by itself than has been supposed.

If it were granted, however, that the æsthetic moment did derive its value from a purpose and was not in any literal way free from desire, there would still remain to be explained that feeling of freedom which is so often observed as accom-

¹ *Psy. Rev.*, Vol. XIII, No. 3.

² Cf. also Witmer, *Phil. Stud.*, IX, p. 128, for a like result.

panying the appreciation of beauty. Freedom, as any one would agree, rests upon the power of choice, hence there is no freedom unless there are at least two things to choose from. And, conversely, the person who has possible alternatives is a free agent, and the broader the field of his possibilities the greater his sense of freedom. According to the theory of emotion cited above every emotion represents more than one possible action — is in fact the consciousness of conflicting impulses. The very presence of emotion is therefore an appropriate situation for the sense of freedom, being a moment of suspended choice, or balance of alternatives.

If art is stimulative is it possible to name some of the concrete acts which it instigates? If it has meaning, exactly what does it mean to have us do? It is not, I think, possible always, or even often, to name the precise outcome in action of a work of art. It has already been said above that the stimulus of art is generic rather than specific, and I should like to dwell a little at this point on that distinction. The works of Millet and Breton must certainly modify the attitude of many people towards the laborer of the field, yet it is impossible to say exactly what acts those pictures inspire; acts of charity perhaps, but they certainly do not solicit gross and obvious charities, nor would these express the intention of the pictures. The picture of the Man with the Hoe inspired Markham's

poem, and picture and poem inspire their public with a sense of social responsibility and a feeling of awful compassion. The result of this should be some bettering of social conditions, that is, better social conditions would express the ultimate intention of such works of art (whether that were consciously intended by the *artist* or not), but just how to get better conditions, exactly what to do we must find out not from the work of art but rather from social science. Art inspires merely the emotional stage of the reform. To take another illustration, martial music is believed to have an effect upon the action of soldiers, but while it may inspire courage it takes the intelligence of military science to narrow the emotion into the effective and desired concrete act. Here, too, art carries the actor only as far as the emotional stage of action. He feels urgently *that* he must do something, but art furnishes only in a general way the notion of *what* he shall perform.

The meaning of art is thus a felt meaning not a definitely known one. This is the striking difference between æsthetic appreciation and logical judgment. Every judgment is something of an equation, a balancing process in which a certain equivalence is predicated. One thing is said *to be* another, that is, every subject about which anything is judged is in a manner balanced by its predicates. Now with æsthetic appreciation there is not just that kind of balance present; the

beautiful object is there as the subject about which one's feeling hangs, but its precise valuation in the way of definite predicates is wanting. It deserves predicates but they are at the moment unknown quantities. The work of art has a weight and a meaning, but at the moment of felt effect it has not yet been fully translated into that meaning. It is this felt but undefined significance which makes the mystery of great art — the face of Mona Lisa so full of significance, is equally full of mystery and of things unknown; one is not sure even whether her smile is sinister or benign — if indeed it is a smile.

The function of art, then, is to preserve and present meanings at their emotional stage, before they have become explicit, definite, or solved. Since every emotion is an unsolved problem or a conflict, the artist is he who discovers and finds problems, and his business is to put them into persistent form. The artist part of each of us is the part which leads us into emotional complexities and hazards, and this impulse is satisfied only when we are involved in an objective situation. This impulse is at bottom very much the same as that which leads one in any sport to wish for a hard game. It is the experimental or adventurous side of our nature, and the satisfaction of the impulse is reached when one is confronted by a stiff opposition. As some one has said, "*On ne reste que sur ce qui resiste.*" On the intellect-

ual level this desire seems to me no other than the desire for an objectively real world in which to think and feel and act. Every one can at times sympathize with Rasselas in his wish to escape from the Happy Valley.

Much of the criticism of pragmatism rests upon the feeling that pragmatism does not do justice to the difficulties of the human situation, does not recognize the stubborn character of objects and oppositions. We may answer this (aside from the answer that nowhere is opposition more difficult or real than between different purposes) by saying that one may recognize opposition itself as part of a purpose and as satisfaction of an impulse.

Finally, the pragmatic view of æsthetics recognizes the æsthetic moment as a problem, not as a solution, a beginning rather than an end. The pragmatic view of art, I should say, is this, that art is not essentially an imitation of life — a copy of something done and finished before art took it up, but that life is a copy and imitation of art. If art is the “image of life” it is more a prophetic than an historic image. Thus, Henry James has created for us many situations, put things in our lives that were not there before; and Meredith has made persons. After seeing a Turner one sees more form and color in a sky. We see beauty in nature because we see it as a picture. The *genre* in art has given us an interest in common things,

we can see them at last because we see that they are a pageant. In other words, art if it is stimulative and instrumental must be prior to that which it effects. Life and nature are in a vital sense experienced as products of art.

THE CONSCIOUSNESS OF RELATION

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THE CONSCIOUSNESS OF RELATION

BY R. S. WOODWORTH

TWO points of method long since impressed me in the psychology of Professor James: on the one hand his recognition of the great variety of experience and consequent distrust of easy simplifications and unifications — a lack of undue veneration for the law of parsimony — and on the other hand his whole-hearted acceptance of the physiological point of view. It is then quite in the spirit of a pupil that I have urged the need of giving up a purely sensationalistic psychology, as neither adequate to the variety of mental facts, nor consonant with the probable functions of the brain. There are facts of consciousness which do not readily fit into a sensationalistic classification. They are not sensations as we ordinarily use the term, and they are not images if images are described in terms of sensation.

Some persons, though not all, are able to detect, in their thinking, moments bare of recognizable imagery, containing no sensations of interest — moments, nevertheless, of mental alertness and of keen consciousness. In answering Galton's

questions regarding the breakfast-table, they affirm that they think of the various items without anything like a sensible picture of them. In voluntary action, they say that, though they know perfectly well what act they are about to perform, they do not represent it in visual, kinesthetic, verbal, or other sensory terms. In solving problems, they declare that the solution first appears in a non-sensory form, which, however, is clearly conscious. Even in sense perception, many persons find that the thing as it is momentarily sensed is but the sign of the thing as it is thought of, while nevertheless the thing as thought of does not appear in consciousness with any sensory qualities but those which are presented at the moment. As all students of imagery from Galton down have found, the persons who make these statements are often men of high intelligence and scientific training, sometimes they are psychologists with special training in self-observation. Their observations cannot be swept aside as untrustworthy.

It is ultra-parsimonious for the psychologist to try to keep house without these facts. They should be admitted in a generous spirit and allowed the independent standing in our classification which they seem to demand. There is no demand, emanating from the facts themselves, that they be classed as sensations; they are not observed as sensory complexes. It is only because our scheme of classification is not generous

enough, because our zeal for parsimony is excessive, that we insist they must be sensations or sensory images in disguise.

Physiologically, the argument is as follows: we cannot pretend that all the functions of the brain are sensory, concerned exclusively with the reception of stimuli or with the reproduction of activities appropriate to the reception of stimuli. If you pass in review the functions that are evidenced by our thought and behavior, you cannot reduce them all to sensation. If you consider the known localization of functions, you find only a small part of the brain devoted to the senses. If you consider the findings of brain pathology, you conclude that not all loss of function is describable as loss of sensation. Now, though it would be bad logic to infer consciousness from brain function, the physiological evidence of non-sensory functions gives additional weight and significance to the introspective evidence of non-sensory consciousness.

Among the functions which appear in human thought and behavior, though not as yet revealed by brain physiology, is that of reaction to the relations of things. I leave aside for the moment the question of whether there is any special consciousness of relation, and ask only whether we become adjusted to relations, and whether this sort of adjustment is anything different from adjustment to sense stimuli. The question admits of but one answer. Certainly we react to relations of size and

shape, of distance and direction, of before and after in time, of likeness and difference, and many others. Let two objects be before our eyes: without any change in our sensation of them, we react now to one relation, now to another, of the many which hold between them. The adjustment to any particular relation is something additional to the perception of the objects. The failure to become adjusted to any one of them is not a defect in the reception of the stimulus. The change in adjustment from one relation to another is not a change in the mode of receiving the stimulus.

Dropping now into terminology that implies consciousness, I say that given the same sense-presentation, we may successively observe numerous relations within it. Looking at the pictures on the wall, we notice, first, that one is larger than another, then that it is more nearly square, that it is farther to the right, nearer, done in brighter colors, more pleasing. We pass from one of these relations to another, losing consciousness of one as we gain consciousness of another. All the while the sense presentation remains constant, nor are we conscious, usually, of additions and subtractions of imagery. What, then, is the change in consciousness which occurs when a relation appears or disappears? Words may appear and disappear, different movements may be made; but these reactions seem often to follow the first perception of the relation. The most straightforward de-

scription of the changes in consciousness is that a feeling of relation comes and goes. If there be such a thing as a feeling of relation corresponding to the adjustment to the relation, the change in consciousness offers no peculiar difficulty to description.

To get a little first-hand information regarding the adjustment to relations and the accompanying consciousness, I have employed a simple form of experiment, in which a relation is presented by means of two terms between which it holds, and a third term is given to which a fourth is to be found such that it bears the same relation to the third as the second bears to the first. In other words, the problem is one in the "rule of three," extended to other than numerical relations, $a : b :: c : x$; find x . *analogy.*

In one form of this experiment the terms were cards of two colors (red and green), of two shades, of three shapes (squares, rectangles twice as long as wide, and rectangles four times as long as wide), and of two sizes (the squares being of 6 and 3 cm. sides). With this material laid out before the subject, a pair could be chosen to present any one of a considerable number of relations, simple and compound. The pair might be alike in all respects; the problem was then the simple one of finding a fourth term exactly like the third. Or, the second term might have the same color as the first, but a darker shade, the same height as the

first but only half its width. The first pair were placed side by side, and the third term below the first; the subject, if an adult, was asked "to find a fourth card which should have the same relation to the third as the second had to the first." Adults readily perceived relations presented in this way, though not always so accurately as was intended; they often though not always named the relation. The experiment was of more interest when tried on children; so far I have tried it on one boy of three-and-a-half years. Laying two cards side by side, I said, "We will put these two together," and, placing a third below the first, asked, "Which card will go with this one then?" If the child failed to find the proper card quickly, I picked it out for him, saying, "You see these two go together just as the first two go together." Then I placed a fifth card below the first and third, and asked him to find its mate. It was not hard to interest the child in this game, nor to make him understand the rules of the game. To the simpler relations he reacted quickly and surely; to the more complex with some hesitation and error, but, unless the relation was very complicated, he perceived it at least roughly. He was clearly not acting at random; and he was clearly matching according to the relation presented, and not according to the character of the individual terms. He reacted successfully to relations for which he had no names. It was clear that he was able to

detach a relation from one pair of terms and transfer it to another, and that the transfer was not always accomplished by aid of the name of the relation.

The experiment was tried in another form with adults, for the purpose of gaining introspective evidence of the manner in which the relation was present in consciousness during this process of transfer from one pair of terms to another. The problem took again the form, $a:b::c:x$, this form being chosen because it does not supply, ready-made, any name or other means of holding the relation in mind. The relations employed were a varied assortment, of which the following are examples:

London : England :: Paris : ?

Mice : cats :: worms : ?

Eyes : face :: a lake : ?

The hand : the fist :: a nation : ?

A church organ : a banjo :: Hamlet : ?

From such experiments I received the following kinds of testimony as to the feelings aroused:

1. When the relation is easy to grasp and the missing term readily found, very little consciousness appears. "There was nothing in my mind," said one of my subjects, "except that I wanted to answer your question right." The answer comes immediately on hearing the three given terms; as in the case, "A boy : a man :: a girl : ?"

2. When there is more difficulty, the relation sometimes receives a name before the answer is found. In seeking a fourth term for the trio:

“Jimmie : James :: Bessie : ?” the word “nickname” appeared in consciousness.

3. Sometimes the relation is pictured in some form of imagery. In solving the problem, “Uncle : aunt :: bull : ?” one subject had a visual image of sexual relations. In solving the problem, “Yellow : blue :: violet : ?” one subject got a schematic image of the color circle, and a sort of motor image of drawing a diameter across from the violet to the yellow-green.

4. Sometimes the subject reported that he felt the relation, but did not name it nor have an image of it, as in the case, “Bravery : courage :: good humor : ?”

In this form of exercise, the relation is suggested by means of two terms between which it holds, *plus* a third term which serves to indicate which of the possible relations between the first two terms is chosen. The relation must now be detached from the first pair of terms and transferred to another case. In the process of transfer, the relation sometimes does not exist at all in consciousness. Sometimes it has a name or image as its vehicle — an image which is applicable alike to the case from which the transfer is made and to the case to which the transfer is made. Sometimes, however, and very often indeed, the transfer is accomplished without such a vehicle, though the relation remains in consciousness. The feeling of relation appears then as an “imageless thought,” and seems as sub-

stantial a component of consciousness as are the feelings of the terms. It has as good a right to an independent standing in psychological classification as any other feeling.

To allow any independence to relations will perhaps seem a very radical step, since they are agreed, in logic, to have no standing or substance apart from their terms. The terms might perhaps exist without the relation, but the relation without the terms — never! This form of criticism, though no doubt serviceable in logic, is distinctly inapplicable to psychology. Just as the axiom, "The whole is equal to the sum of its parts," useful in mathematics, cannot be carried over into psychology in the form, "The feeling of the whole is equal to the sum of the feelings of the parts," so the logical axiom that a relation is nothing without its terms should not be psychologically misinterpreted to mean that a feeling of relation is nothing without the feelings of its terms. The feeling of a relation may exist without the feeling of any pair of terms, as when we seek a pair of terms which shall stand in a given relation — for example, that of great dissimilarity — or as when, having the relation and one term given, we seek for the missing term. Adjustment to a relation is not included in the adjustment to its terms, nor is consciousness of a relation included in the consciousness of the terms. The relation may be detached in thought from its

terms, even as a quality may be detached from a thing. Such detachment is necessary for thought to progress, since what is observed in one case is to be applied to another.

Feelings of relationship have a present standing in psychology mostly in their evanescent or transitive form. On hearing them spoken of, one is reminded first of all of the "Stream of Thought," and of the convincing way in which they are there used to exemplify those transitions in thought which, though dynamically important, are so fleeting as almost to elude observation. But I do not understand the author of the "Stream of Thought" to assert that feelings of relation must always be evanescent. We do not speak of "a feeling of *of*," "a feeling of *but*," because the feelings expressed by these words are of so transitional a character that they will not stand still to be made the resting place for thought. But we do speak of feelings of possession and of opposition. That is to say, the same relations which are sometimes felt in so transitive a way that only a preposition or conjunction can express the feeling, may also be felt strongly and substantively, dwelt on, and made the subjects of discourse. Corresponding to prepositions and other relative parts of speech can usually be found nouns, adjectives, and verbs which are used to express the same relations when they become the topic of thought. Prepositions themselves often receive an emphasis which indicates that the feel-

ings which they express are the emphatic parts of consciousness: "With or without," "Before or behind time," "He that is not for me is against me." There are other relations which have no relative parts of speech to express them in the quick and transitive form, and which are often the topic of thought; superiority and inferiority, likeness and difference, order and disorder, cost and value, cheapness, economy, propriety, and aptitude are examples. Some of these have prepositions now in course of formation. A relation which has become familiar and which has frequently to be recognized and acted upon, tends, like any other subject of thought, to be felt in a cursory and transitional way, and so to demand something like a preposition for its expression. Things and qualities, as well as relations, may be thought of in a transitional way, especially when they are very familiar; but some of the relations are perhaps more familiar than any thing or quality. Few things or qualities are so common, or at least so commonly dealt with, as the relations of near and far, more or less, mine and thine. So practised do we become in dealing with them that we slide over them with little hesitation; yet perhaps there is none of them but can be made the object of prolonged scrutiny.

The lack of unity in a relation, its two-endedness from the point of view of logic, creates no genuine difficulty in psychology. Because a relation is

bifurcated it does not follow that the feeling of it is any less a unit than any other feeling. The reaction to a bifurcated stimulus may be as simple and single as other reactions. If, in putting together a machine, we observe two parts which fit together, our reaction to this relation is a unit. The reaction need not preserve the complexity of the stimulus; and what is thus true of motor reactions applies equally well to central adjustments. The adjustment to a relation is a unit, and the feeling of a relation has none of the heart-rending complexity and self-disruptiveness which so troubles the student of metaphysics.

In terms of brain action: a complex stimulus, affecting many and diverse parts of the brain, may, through them, and as the combined result of their activity, bring into action some one part or little organ; and the action of this organ, once aroused, is as simple as the action of an organ that is aroused by a simple stimulus. There is no law that a complex cause produces a complex effect, or that a simple cause produces a simple effect; instead, composition and resolution of forces are so common as to be almost the rule. In the nervous system, we have abundant evidence of the convergence and divergence of stimuli; one organ may be excited by the joint influence of several organs, and several organs may be simultaneously excited by the branching influence of one organ. A relation, however complex its manner of presentation, may

arouse a single organ to activity. It does this, sooner or later in its progress through the brain, as is evidenced by the unity of the motor response when, for example, we *name* the relation that holds between two presented terms. The unity perhaps does not arise until the motor parts of the brain are reached; but it seems much more probable, in view of the large areas of the cortex which are available for operations intervening between sensation and movement, as well as of the pathological evidence that such operations are localized and have organs of their own; in view further of the fact that we become adjusted to perceived relations without any evidence of corresponding motor response at the moment of adjustment; and in view of the feelings of relation — in view of all these facts it seems most probable that the unity of adjustment to relations, groups, and other complex stimuli is a function, not of the motor areas, but of parts of the large region which goes by the name of the “association areas.”

If there are organs or foci in the cortex, the activity of which constitutes an adjustment to a presented relation, there seems no reason why there should not be corresponding feelings, nor why these feelings should not have the general characteristics of other feelings — for example, why they should not be as simple as other feelings. And introspection seems to show that they are as simple as other feelings. No matter how complicated a

relation may be when analyzed logically or represented by a diagram, it can be treated in thought as a unit, and be felt as a unit. Relations may become the terms between which other relations are observed, and these higher relations may again serve as terms. Were there no unity in a relation, did it mean nothing for us apart from concrete terms which must be pictured, this superposition of relations upon relations would soon result in an enormous complexity of consciousness; whereas, in fact, consciousness may be as clean and bold in its design as when it is dealing with a few elementary sense qualities. The mind of the mathematician, when he has reached the later propositions of a theory, and is dealing with what turn out on analysis to be relations of relations of relations, is not the spider's web of feelings of relation that analysis would lead us to expect. Without being mathematical, one still often has occasion to deal with relations of a high order. My land, let us suppose, has a boundary with very unequal sides and angles, my neighbor's plot is more nearly regular. This inequality in the regularity of plots is characteristic of our village, but is absent from a neighboring village. This difference between villages is much more characteristic of this part of the country than of certain others. The diversity of the country in this respect is in marked contrast with its uniformity in certain other respects. It thus becomes hard to say how far an observation made in one part

of the country gives a fair sample of the country as a whole; and this condition of affairs, which is much more pronounced here than in many other countries, is at times perplexing to a foreign observer. If the reader will draw a diagram of the sky-scraper of relations which makes up the "condition of affairs" which perplexes the foreign observer, he will agree that nothing corresponding to this analytic scheme congested his mind when he thought the final sentence. On the contrary, his consciousness may have been as simple at the end of the course of thought as at the beginning. A relation may be of any order or power, and still have in consciousness a felt quality which is equally simple, no matter what the order of the relation. The feelings of relations are in fact of the same order as feelings of sensory qualities. Each feeling of relation is a simple quality.

Some hesitation will be felt about admitting feelings of relation to a scientific standing, for the reason that they are so essentially private; it seems impossible that we can ever come to agreement regarding them. As to the feelings of the terms, when these are sensible objects, it seems that we can experience them in common and so come to a reasonable degree of agreement. But if there be any consciousness additional to that of the terms, it would seem that we could never arrive at a common understanding and a generally accepted

description. The difficulty is, however, not quite correctly stated. We do not know, indeed, that my feeling of a certain relation is like yours, we have no means of placing the two side by side and comparing them. But this difficulty is not peculiar to the feelings of relation, but holds of all feelings, of all qualities of conscious experience. We do not know that my feeling of red is of like quality with your feeling of red. We can come to no agreement regarding the sensory qualities. What we do agree on is that red is the color of such and such objects — that is, that these objects are alike in color — we agree that red occurs also in a certain part of the spectrum and corresponds to light of low refrangibility; we agree that it is more like orange than yellow, that it is intermediate between orange and purple, that it is very different from blue-green and is complementary to it. In other words, we agree on the relations of red — both its time and space relations and its relations of likeness and difference. We also agree, or disagree, as to its agreeableness, but this again can be defined only in relation to the effect on us of other stimuli. But as to its own peculiar quality, neither agreement or disagreement can be reached. What we agree or disagree on are exclusively relations, never qualities of feeling. Thus the feelings of relation suffer from no peculiar difficulty in connection with the social sanctions of science.

When we wish to experience the same sensory

quality, we let ourselves be affected by the same stimulus; and we apply this method also when we wish to experience a relation in common. To give a child a knowledge of red as we know it, we place before him a red ball, a red coat, a red toy, trying to make the common quality prominent, and contrasting it with the blue color of other things. Similarly, to make him acquainted with our notion of such a relation as half, we show him half an apple, half an orange, half a glass of water; and these we contrast with whole things and with fractions larger and smaller than a half. Red, we tell him, is what is there now, and what is different from blue; a half, too, is what is there now, and what is different from a whole or a quarter. We do not pretend to communicate to him the "what," but only its relations.

So again, if we attempt to take scientific account of mental imagery, we begin, as Galton did, by putting different persons in the same situation. "Think of your breakfast-table. Can you see it before your mind's eye? How does it compare with the actual sensory presence, in vividness of color, in distinctness of outline, in size, in position?" I recently heard a group of psychologists threshing out this matter of imagery, and there was agreement between several of them that the image, as they experienced it, was not readily comparable with sensation in regard to vividness and distinctness. Their images, if they should be called such,

seemed quite a different sort of thing from sensation. Their thoughts of objects had a one to one correspondence with the objects, they were definite in identifying them, and they were workable; but they were incommensurable with sensations. These men were clearly talking throughout in terms of relations — the relations of the thought of objects to the sensations of objects and to the dealing with objects. They did not attempt to compare their actual feelings, save as the quality of the feeling was indicated by the relations in which it stood. The same procedure can be followed in comparing our feelings of relations. When, for example, I testify that the feeling which I have in attending to a certain relation is sharply distinguished from sensory experience, and that it has as much simplicity as any other fact of consciousness, you can place yourself in the same situation, and see whether you agree with me.

When, therefore, we are enjoined to reduce all conscious facts to sensation, on the ground that we cannot possibly come to scientific agreement in any other than sensory terms, those of us who smart under the epistemological whip, and wish we could be free to find what we find, may take comfort in the reflection that the same kind of agreement is possible regarding non-sensory feelings, should such be found, as regarding sensations. In both cases the agreement concerns the relations of the feelings, not their intimate qualities.

This exclusive attention to relations is not peculiar to psychology, but is characteristic of all science. Science deals with relations, not with qualities. We conceive quality as inherent in a thing, relation as transcending the thing. The clearest example of quality is found in consciousness. A given bit of consciousness is just as it is; its quality is immediately and exhaustively given in its isolated existence. No more quality is imported into it by comparing it with anything outside itself. In point of quality, it is as it is experienced. In point of relation, however, it is not as it is experienced. It has numerous relations of cause and effect, of likeness and difference, of truth and value, which can be discovered later, but are not known to itself. What is thus experientially seen to be true of bits of consciousness is conceived as true also of external things. A physical thing is thought of as having a quality of its own.¹ The quality is immanent in the thing. A relation, on the contrary, passes beyond the thing; it seems to have no self-subsistence, and thus lays itself open to the destructive criticism which has been levelled at it for its lack of independence. But the same characteristic

¹ The quality of a thing is to be distinguished from its qualities. Its quality, or perhaps better its character, is imperfectly represented by the sum of its qualities, imperfectly because its quality covers the concomitance of the particular qualities and their mutual relations. The qualities of an orange are its size, shape, weight, color, smell, taste, structure, its origin and history, its use and destiny, its cost, its æsthetic value, its standing in psychology as the classic example of a thing. The quality or character of the orange includes all of these with their mutual dependencies, and the unity of the whole thing.

makes it a means of knowledge. To get knowledge, thought must move. Quality affords no vehicle to carry it; relation bears it onward. Hence science deals with relations. A quality is to science the sign of a problem; it is an unexplored country. Exploration dissolves the quality into relations; it gives us a map, which has indeed a quality of its own, but not the quality of the country; but the relations in the map are relations of the country. As we pass from a naïve to a scientific conception of anything we leave qualities behind and come to know relations. We first think of hardness, for example, as a quality residing in certain things; but soon we see that a definition of hardness can only be made by observing the relations of these things to other things. Not satisfied, we try to penetrate into the thing and see why it has these relations; we come then to conceive of hardness as a mutual relation between the particles of the thing, thus substituting inner relations for outer in our definition of the quality. The terms of a relation are for scientific thought unanalyzed residues; so far as they retain any quality, they simply mark the limit to which science has progressed. That qualities are resolvable into relations is an essential postulate of the scientific attitude, for as long as a quality remains simply a quality, no description or explanation, no classification or analysis, has occurred. Qualities are not explanatory or dynamic in any way; they stay at home and are essentially

private. They can be contemplated but not treated discursively. They have æsthetic but not scientific or practical value.

That every quality is decomposable into relations is rather a postulate than an axiom; on the other hand, it seems almost axiomatic that every relation constitutes a quality. Two terms in relation form a group or whole, and the relation constitutes a quality of the whole. If a husband and wife are antagonistic, this relation between them constitutes a quality of the family. The quality is an inarticulate form of the same fact which is given articulately in the relation.

The quality of an object, as felt by us, need not tally with the quality of the object itself. As felt by us, the quality is our own, and private as qualities always are. We conceive the quality of the object as likewise private to it. There seems to be no cogent reason why the felt quality in us should be a copy of the quality of the object. It is otherwise with relations, which we believe, at any rate, to be objective. No error is introduced into our thought if qualities of our experience do not agree with the qualities of objects; while if the relations perceived do not tally with the relations of the object, we are in error. A relation transcends the thought that thinks it. But it is not the *feeling* of the relation that is transcendent, for this feeling, like other qualities, is private. It is hard to believe, when we perceive one thing as larger than another, or in any

way related to it, that the relation perceived does not hold objectively; but the peculiar feeling which we experience in perceiving the relation need not have any existence apart from the feeling itself. Space as a "form of perception," if by this is meant a felt quality, may very well be purely subjective though spatial relations are objective. It is easier to be an idealist in regard to qualities than in regard to relations. In all this I speak as a psychologist, I hope, rather than as a metaphysician. Trying to think yourself into the idealistic attitude I regard as a psychological experiment; and with me the experiment succeeds pretty well as far as concerns the sensory and conceived qualities of objects, but not at all as concerns their relations.

The feeling of a relation is itself a quality. What has been said of the scientific value of relations — and what might similarly be said of their practical utility — does not apply to the feelings of relation. The utility of the feelings of relation is by no means evident. The utility of adjusting ourselves to relations is evident enough, but of what use is the particular feeling that we have in the process of adjustment? The use of any consciousness is hard to make out; but, granted that consciousness is useful in a general way, of what use are its special nuances? I cannot fall back on the argument from utility in supporting my view that feelings of relation exist as independent facts of consciousness; and this may seem a decided weak-

ness in the position. But I should answer that we see the utility of the particular qualities of sensation as little as that of the feelings of relation. That red objects should look different from green ones is useful, but what is the utility of that particular quality, red? Any other quality of feeling — save perhaps pleasure and pain — would serve as well, provided it presented the same relations of time and place, likeness and difference.

It is then relations, or adjustment to relations, and not the feelings of relations, that carry thought forward. Introspection reveals no more agency in this sort of feeling than in others. We cannot couple together a train of judgments by the feelings of relation existing between their terms. We cannot by examining the feelings find out anything about the subject-matter to which they refer. For example, while mathematics seems to deal with something inward rather than with physical objects, yet it is by no means an introspective study. By studying the feelings of the relations which form his subject-matter, no mathematician would make progress in his analysis. He is dealing with relations, not with the feelings of them. It is not then by inference from their supposed effects or utility, but only by direct acquaintance with the feelings themselves, that the knowledge of their existence is reached.

ON THE VARIABILITY OF INDIVIDUAL
JUDGMENT

ON THE VARIABILITY OF INDIVIDUAL JUDGMENT

BY FREDERIC LYMAN WELLS

IN the article "Statistics of American Psychologists"¹ Professor Cattell calls attention to the fact that if one endeavors to arrange and rearrange in serial order a number of given objects, the positions successively given them will vary somewhat as they would vary if the arrangements had been made one each by different observers. If we undertook to rearrange ten times a series of grays in order of brightness, we should no more get the same order each time than we should get identical orders from ten different subjects. Nor would our own orders vary approximately the same amount from the average; sometimes we should be better, sometimes worse, judges, just as among our ten subjects some would be more discriminative, some less. The judgments of the same individual at different times are theoretically quite comparable to those of different individuals regardless of the factor of time.

In this way there may be illustrated a continuum between the subjective and objective classes

¹ *Am. J. Psych.*, Vol. XIV, 320-328.

of judgment. In the case of grays, weights, or lines we assume a certain standard which we term the objective order, and which we determine through photometry or some analogous method. Because we have such methods, we do not need to have recourse to individual judgments to determine objective values, and these individual judgments give us a part of the personal equation; the individual's sensibility to light, weight, etc. On the other hand, we have such subjective judgment as preferences in sculpture, painting, or music. In the first class we may arrange individuals in precise order for accuracy of discrimination; in the second, one may with equally good taste vary his preferences within a considerable range. So far as any distinction on a statistical basis is possible, we might consider as subjective those types in which the various judgments of the individual formed a species of their own, varying from each other considerably less than from an equal number of judgments made by different individuals; and consider as objective those in which an individual would vary from his own independent judgments about as much as the variation of an equal number of judgments by different individuals. For example, if A and B arranged ten pieces of music in order of preference, the orders would centre about each individual's own standard; but if A, B, C, D, etc., arranged ten graduated weights, the orders would theoretically all centre about a

common standard, the objective order of heaviness. The two categories would almost certainly be continuous. We may first consider from this viewpoint types of this first, or highly subjective, class of judgments, and compare these subsequently with examples of a more objective type.

Experiments in Preference

An obvious and serious difficulty with all experiments involving repeated judgments of the same thing are the factors of recognition and memory. Especially is this true of judgments of subjective preference with which we are to be here concerned. If the subject remembers his previous judgments, he will in spite of himself order his successive ones accordingly. The only practicable ways of meeting this difficulty are to make the series to be arranged as long as possible, and to allow as much time as possible to elapse between the successive arrangements. A certain homogeneity in the series is necessary, and this made the selection of suitable material no easy task. A series of fifty colored souvenir postal cards, to be graded in order of individual preference, was finally decided upon as the most practical approach to the problem.¹ The cards were approved

¹ The psychological possibilities of the souvenir postal card have been insufficiently appreciated. They afford an inexhaustible mine of material for experiments in recognition memory and kindred processes, for which there is no other readily accessible apparatus.

by the writer from selections made from the sample books of the Rotograph Company. They are all views of natural scenery, with the works of man a subordinate feature. In a few cards these last are altogether absent. The fifty cards were arranged by the five subjects, A-E, five times each, one week elapsing between each individual's successive arrangements. Single arrangements were also made by five additional subjects, F-J, and these, combined with the first arrangements of A-E, give, for comparison, a series of ten arrangements by different subjects. Subjects A, B, and C are men of special psychological training, D and E are women of moderate psychological training. Of the five subjects making single arrangements, all are men of special, though widely differing, psychological training. From these experiments are gathered the data to be discussed below.

The uniform attitude of the subjects toward the experiment was one of lack of confidence in the judgments. The time required to make a single arrangement varied from 15 to 45 minutes, the women taking as a rule longer than the men, and the time, of course, decreasing with the successive arrangements. So far as exact positions of the cards were concerned, the subjects who made repeated judgments reported complete oblivescence except now and then with regard to first or last positions. Of course a remembered judgment

was not necessarily repeated nor were repeated judgments necessarily remembered; subject E placed the same card last in each arrangement, and at the close expressed surprise at finding that she had done so. One subject expressed absolute certainty that new cards were being successively introduced. There was naturally subjective effort to judge independently of previous arrangements. Certain features are to be noted in the results indicating that the memory difficulty was fairly satisfactorily met.

The subjoined Table I gives under X the order, average positions, and m. v. (not p. e.) of the single arrangements by the ten subjects. Column V is a combination of the records of subjects A-E which will be described below. Table II gives in detail the results of the five successive arrangements by each of the subjects A-E. To anyone interested in the statistics of such arrangements they will perhaps repay a more careful examination than it is possible to give them here.

When the subjects made the arrangements, it was customary to hesitate considerably on the first few and then to proceed at about an equal, or perhaps slightly increasing, rate to the end. This hardly reflects the size of the differences, which are presumably greatest at the ends. It is due merely to a natural tendency to exercise greater care at the beginning of the experiment. So far as the actual order is concerned they cannot have

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TABLE I

X (RESULTS FOR TEN SUBJECTS)				V (AV. OF TABLE II)		
Order.	Roto-graph Co. Serial No.	Position.	M. V.	Order.	Position.	M. V.
1	5442	12.6	10.2	1	2.6	1.3
2	5511	13.3	8.8	2	4.0	2.3
3	5353	13.6	7.7	3	5.8	3.1
4	2460	14.1	6.3	4	6.8	2.9
5	7384	15.0	10.4	5	7.4	3.8
6	106 <i>b</i>	15.8	9.6	6	8.4	4.4
7	30 <i>a</i>	16.7	9.6	7	9.6	6.4
8	6151	17.0	10.8	8	10.2	2.3
9	8708	17.4	7.0	9	10.6	2.3
10	5521	17.6	4.6	10	12.0	5.3
11	7118	18.0	11.1	11	12.8	4.5
12	7198	19.4	10.2	12	13.4	5.2
13	6236	20.6	8.8	13	14.0	5.1
14	7196	21.1	14.7	14	15.0	5.0
15	3893	21.4	13.2	15	15.8	7.0
16	2012	22.0	9.2	16	17.6	6.0
17	6182	22.5	10.7	17	18.6	5.0
18	5626	22.7	10.7	18	19.2	5.1
19	7570	23.0	11.4	19	19.8	6.2
20	6976	23.4	10.4	20	21.0	6.0
21	6156	23.4	10.8	21	21.6	6.4
22	5560	23.9	12.9	22	21.8	4.9
23	7125	24.4	10.6	23	23.0	5.4
24	5710	24.5	10.3	24	25.0	5.6
25	7171	25.1	16.4	25	26.0	7.0

TABLE I—*continued*

X (RESULTS FOR TEN SUBJECTS)				V (AV. OF TABLE II)		
Order.	Roto-graph Co. Serial No.	Position.	M. V.	Order.	Position.	M. V.
26	5871	26.4	11.1	26	26.8	4.7
27	911	26.5	14.1	27	27.4	6.0
28	7522	27.0	12.2	28	28.0	6.0
29	184	27.0	16.4	29	28.6	3.9
30	16103	27.4	10.8	30	29.2	4.3
31	6264	27.6	8.0	31	30.0	6.5
32	7170	28.1	6.7	32	30.4	6.2
33	5731	28.8	8.8	33	32.2	5.0
34	5439	29.1	12.1	34	33.0	4.8
35	7197	29.3	9.3	35	33.6	5.8
36	8706	29.6	8.2	36	34.4	6.8
37	5570	29.9	14.5	37	34.6	5.0
38	25508	30.2	11.4	38	35.0	5.0
39	6442	30.3	10.9	39	36.2	4.8
40	6547	30.4	9.2	40	36.4	6.0
41	5727	30.5	16.7	41	37.4	4.8
42	8704	31.0	11.0	42	39.2	4.0
43	2103	32.6	12.3	43	40.4	5.8
44	6670	32.7	13.0	44	42.0	3.5
45	6976 <i>a</i>	34.8	5.9	45	43.2	3.9
46	7026	35.5	8.1	46	44.6	3.0
47	2010	36.6	8.6	47	45.4	2.0
48	5862	36.6	10.8	48	46.6	2.0
49	5860	38.4	10.2	49	48.0	1.2
50	1285	43.1	5.1	50	49.6	0.6

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TABLE II

Order	Roto-graph Co. Serial No.	A		Roto-graph Co. Serial No.	B		Roto-graph Co. Serial No.	
		Position	M. V.		Position	M. V.		
1	5353	1	0.0	7384	4	1.8	6156	
2	5521	3	1.2	5442	6	4.4	6264	
3	106 <i>b</i>	4	2.0	2460	7	5.2	5731	
4	5560	6	1.8	25508	8	4.8	6670	
5	5511	7	3.4	6151	9	3.0	8704	
6	6182	7	3.8	2012	10	7.6	2102	
7	6151	8	0.8	7196	11	9.6	7196	
8	5442	8	2.0	5560	12	2.6	5511	
9	6976	9	3.4	5353	13	8.4	7197	
10	30 <i>a</i>	12	4.4	8708	14	9.4	7198	
11	5871	13	3.6	7522	15	6.2	16103	
12	7125	14	3.8	106 <i>b</i>	15	9.8	8708	
13	7118	15	4.8	6442	15	8.8	5521	
14	5710	15	0.8	6226	{	18	7.6	5710
15	7384	15	4.6	5439		18	11.2	5727
16	2460	17	6.4	8706	{	19	9.4	5570
17	7522	17	3.4	6156		19	3.4	184
18	{	18	2.4	5871	{	19	6.2	7384
19		18	2.2	2013		19	10.0	5303
20	6226	19	4.2	6182	20	6.0	8706	
21	7570	20	1.8	911	20	12.2	6151	
22	16103	20	5.4	3893	21	6.2	5442	
23	6156	23	6.0	309	21	12.2	911	
24	5731	26	2.8	5710	25	4.0	2013	
25	1285	26	6.4	6796	26	9.0	106 <i>b</i>	

TABLE II—*continued*

C		Roto-graph Co. Serial No.	D		Roto-graph Co. Serial No.	E	
Posi- tion	M. V.		Posi- tion	M. V.		Posi- tion	M. V.
3	0.8	7384	3	3.0	7384	2	1.0
4	3.4	5353	3	1.2	5511	4	1.2
6	1.4	6976	6	3.4	5442	6	3.4
{ 7	3.2	6151	6	1.6	16103	7	3.0
{ 7	2.8	5521	7	4.8	5353	7	4.8
9	4.2	3893	8	3.4	2460	8	3.1
11	3.8	5511	{ 9	5.2	5521	9	5.6
{ 13	8.0	5710	{ 9	5.6	5676	9	4.2
{ 13	6.8	5560	9	1.6	3893	9	2.2
{ 13	2.4	6182	10	2.0	6264	11	8.4
14	4.8	7125	10	2.6	6226	12	5.4
{ 15	6.0	2460	{ 11	2.6	7118	12	3.6
{ 15	4.0	106 b	{ 11	3.0	5727	14	4.8
15	8.2	30 a	11	5.2	5439	16	3.4
16	10.2	7118	12	3.6	6976	18	5.6
18	6.4	5442	15	3.4	7198	19	4.6
19	3.2	6670	17	3.2	184	21	11.8
20	8.6	7570	18	2.6	6442	21	5.8
22	8.0	8708	19	2.8	7125	21	7.8
22	9.6	6442	22	3.4	106 b	{ 22	6.6
23	9.6	911	23	3.8	6976 a	{ 22	4.8
23	3.0	6264	23	2.2	7570	22	7.6
23	6.8	6226	24	4.0	6547	24	12.8
24	9.0	7522	25	5.0	5862	25	7.2
25	6.8	7196	26	6.2	5731	27	6.6

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TABLE II—*continued*

Order	Roto-graph Co. Serial No.	A		Roto-graph Co. Serial No.	B		Roto-graph Co. Serial No.	
		Position	M. V.		Position	M. V.		
26	7198	27	6.2	7125	26	8.4	6976	
27	3893	28	6.8	2010	26	6.4	6182	
28	5570	28	3.0	5862	27	10.4	6226	
29	7196	29	4.0	718	28	5.6	30 <i>a</i>	
30	7170	30	2.0	7026	29	5.6	7171	
31	184	31	8.6	5321	29	4.2	7170	
32	6264	32	3.2	1285	29	9.2	5871	
33	6547	34	3.4	7198	31	8.6	5560	
34	7197	34	2.4	8704	32	5.8	7570	
35	5439	35	6.8	6264	32	6.0	6547	
36	7171	36	4.2	7170	32	7.8	2010	
37	8704	36	3.2	5511	33	3.0	2460	
38	8708	36	2.8	5626	34	5.2	5626	
39	2012	37	5.2	16103	{	35	4.2	7522
40	5727	37	4.8	6976 <i>a</i>		35	8.6	3983
41	6976 <i>a</i>	38	5.6	5370	35	8.2	25508	
42	6670	40	3.6	6547	38	4.4	5439	
43	8706	41	4.4	5727	38	8.8	1285	
44	25508	44	1.4	5731	41	6.0	7125	
45	6442	45	2.2	7170	42	3.4	7118	
46	5862	45	0.8	5860	44	3.6	6976 <i>a</i>	
47	2013	46	2.0	6670	45	1.0	7026	
48	7026	47	1.2	184	48	1.2	6442	
49	2010	48	1.2	7171	49	1.0	5862	
50	5860	50	0.0	7197	49	1.6	5860	

The positions are given to the nearest positive integer only; the orders

TABLE II — *concluded*

C		Roto- graph Co. Serial No.	D		Roto- graph Co. Serial No.	E	
Posi- tion	M. V.		Posi- tion	M. V.		Posi- tion	M. V.
27	3.0	25508	{ 27	3.6	2012	27	2.2
28	5.2	5439		4.6	30 <i>a</i>	28	7.0
28	4.2	5871	28	4.8	5710	29	7.6
29	5.6	5626	{ 28	2.2	7197	29	2.2
29	4.8	6156		4.2	7170	30	5.0
30	8.8	7198	29	2.4	8708	31	8.6
30	5.6	7170	29	4.2	7196	32	9.0
31	7.0	6976 <i>a</i>	32	2.6	6182	33	3.2
32	6.4	16103	34	1.4	6151	33	8.2
32	9.8	2012	36	2.0	8706	33	4.6
33	8.4	7197	{ 37	5.6	5860	34	8.0
33	8.8	5862		2.4	6670	34	7.4
{ 33	9.4	5860	37	1.8	7026	35	5.6
	9.6	2013	40	1.6	5871	36	3.6
	10.6	2010	40	1.4	25508	37	4.4
36	3.4	5727	41	2.8	5560	37	3.8
39	4.6	7026	42	2.4	7171	37	5.2
40	7.2	5731	43	2.6	911	40	5.8
41	2.0	5570	44	2.6	2010	40	5.6
42	5.2	6547	45	0.6	2013	42	8.2
45	3.0	8704	46	3.2	8704	{ 43	4.4
47	0.8	7171	46	2.6	7522		3.6
{ 47	3.0	8706	47	1.6	6156	44	3.2
	2.2	184	48	0.8	5570	48	0.8
50	0.0	1285	49	1.6	1285	50	0.0

are correct to a smaller scale, equal positions being indicated by brackets.

much bearing upon the experimental study of æsthetics, because the material would be too difficult to standardize for this purpose. Certain of the cards necessarily fall into groups through similarity of subject or color scheme, and these tend to keep rather together in position, also through the fact that they tend to become associated in memory. So far as establishing any objective basis for criteria of preferability is concerned, the results seem to me almost entirely negative.

It will perhaps be easier to consider in some detail the figures in Table I as a preliminary to the special results of the repeated arrangements in Table II. Column X presents almost a chaos of variability, the extreme range barely covering 30 places, with one exception only 26. The m. v.'s average nearly 11 places and range from the least variable card with an m. v. of 4.6 to the most variable with an m. v. of 16.7 over an approximately normal distribution as follows:

Variation	5	6	7	8	9	10	11	12	13	14	15	16	17
No. cases	2	2	1	5	7	8	13	3	3	2	1	2	1

Among the individual variations there are many above 25, the highest being 32. Card 2460, in which this variation occurs, has an average position of 33, and the individual places assigned to it by the ten subjects are respectively 42, 1, 40, 37, 43, 2, 42, 42, 41. A card graded first by one subject was in two cases graded last by another; in a third, next to the last. One of the former is the

most variable card, 5727, and its grades are respectively 48, 44, 1, 43, 6, 48, 24, 33, 8, 50. The grades of the least variable card, 5521, are 2, 32, 17, 14, 20, 20, 15, 18, 20, 18; position 17.6. Any one acquainted with the meaning of such figures as those given above must recognize the futility of attempting to evolve from them an order of any objective value.

This is much modified in the repeated arrangements by the same subject. It was noted above, that in objective judgments, as of weights, we should, theoretically, vary as much from ourselves as other people varied from each other, and from the comparison of these two variabilities might be deduced the degree of objectivity of the judgments. In the repeated arrangements it is at once evident that the range is much greater and the variability smaller. A table most comparable to X is given under V, which is computed as follows: Subject A's best card, as will be seen from Table II, receives an average of 1, B's an average of 4, C's 3, D's 3, and E's 2. Thus the average position of the best card of the five repeated judgments by five subjects is 2.6, and the average of the respective m. v.'s is 1.3, as opposed to 12.6 and 10.2 for individual judgments by ten subjects. The figures for last position are seen to be 49.6 and .6 as against 43.1 and 5.1. Of course the extreme positions might unduly favor the repeated judgments in this respect. But the figures for the

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middle five judgments are respectively 24.6 and 5.7 as against 25.6 and 12.4. Table III below gives a basis for a more complete comparison of the two variabilities. Each series in Table II contains 50 average judgments, consequently 50 m. v.'s in all. These have been divided into 10 consecutive groups of 5 each. Thus under 1-5 and opposite A we find 1.7, which is the average of the m. v.'s of the five cards which stood highest as a result of A's five consecutive arrangements. Under 15-20 and opposite D is 3.1, the average m. v. of cards 16-20 from the series of five arrangements by D, etc. Opposite Av. are given the averages of the five subjects for each set of five consecutive positions. At the bottom are given the average m. v.'s for the various groups of positions as assigned by the ten subjects.

TABLE III
AVERAGE M. V. FOR EACH SET OF FIVE CONSECUTIVE POSITIONS

Subject	Positions									
	1-5	5-10	10-15	15-20	20-25	25-30	30-35	35-40	40-45	45-50
A	1.7	2.9	3.5	3.7	4.5	4.4	4.9	4.0	3.4	1.0
B	3.8	7.5	8.7	7.0	8.7	7.3	6.8	5.8	6.2	1.7
C	2.3	5.0	6.6	7.2	7.0	4.6	7.5	9.8	4.5	1.8
D	2.8	3.6	3.4	3.1	4.2	3.9	2.5	2.6	2.2	1.9
E	2.7	4.7	4.6	7.3	7.8	4.8	6.7	4.8	5.7	2.4
Av.	2.6	4.7	5.4	5.7	6.4	5.0	5.7	5.4	4.4	1.8
Ten subjects	8.7	8.3	11.6	10.5	12.2	12.9	10	10.8	11.8	8.5

In examining the portion of this table dealing with the repeated arrangements we find, as we should anticipate, that the m. v. increases toward the middle positions and decreases toward the ends. The amount of this increase varies considerably, and constitutes a not uninteresting point of individual difference. In subject A the middle m. v.'s are nearly three times those at the start; in D they are barely half again as much. Individual difference in reliability of judgment seems therefore to be greater in the middle than at the ends. This is what we should expect, for the judgments are more difficult in the middle, and we naturally vary more from each other in our judgment of difficult things than in our judgment of easy ones. Another point of significance is that the m. v.'s are always less at the disliked than at the preferred end, although there is no intrinsic reason why they should be better grounded in memory. This might be in part due to a generally unæsthetic series of cards, but it is perhaps generally true that we are surer of our antipathies than of our preferences.

In the m. v.'s of the ten subjects the most striking appearance beyond their greater size is that the increase in the middle and the decrease at the ends is not nearly so well marked as in the repeated arrangements. This is precisely the condition that the memory factor in the repeated arrangements would give, but under Table IV will be cited

reasons against its being due to this cause. It is also to be noted that here the m. v.'s of the disliked end are not smaller than those of the preferred, though the difference is insignificant.

The m. v.'s of the repeated arrangements of subjects A-E are shown according to series in Table IV *a*.

TABLE IV *a*
COMPARATIVE VARIABILITY OF THE INDIVIDUAL SERIES

Subject	Series					Av.
	I	II	III	IV	V	
A	4.95	3.04	3.08	2.98	3.08	3.43
B	6.82	6.06	4.82	6.30	7.54	6.21
C	6.64	4.84	5.00	6.88	4.72	5.61
D	3.88	3.26	2.58	2.76	2.80	3.06
E	6.72	4.78	5.06	4.48	4.62	5.13

Thus under I-A we find 4.95, which is the average variation of the judgments made in A's first arrangement from the average of the five arrangements made by him; 3.04 is the variation of his second arrangement, etc. Through this table we can determine what arrangement, if any, tends to be the most accurate. In subject A the fourth is the most accurate (av. m. v. 2.98), in subject B the third, C the fifth, D the third, E the fourth. Now assuming any considerable operation of the memory factor in these experiments, one of two

things should result. Either the first judgment should set the standard from which the successive arrangements would vary more or less, or, as the memory of previous judgment accumulates, each successive judgment would become more and more the sum of the preceding arrangements, and the m. v. would progressively decrease. The latter event seems to the writer the more likely, but neither is recorded in the figures, save in so far as the first judgment tends to be a relatively inaccurate one. It is difficult to see in what way the relative accuracy of the successive judgments is distributed differently from what it might be if the successive arrangements had been made by different individuals. They seem to be quite as independent of one another.

Whatever the effect of the memory factor upon the successive series of judgments, those at the ends should be most susceptible to it, those in the middle least. The proper procedure is, then, to examine the variability in the succeeding series according to the position of the cards, and to note if there is any difference in the variability of the successive series according as the positions are high, intermediate, or low. Table IV *b* gives for each subject the variability of the first five, the middle five, and the last five positions, in each of the successive series. No significant difference appears in the relative size of the variabilities of the middle and end cards, *according as the suc-*

TABLE IV b

Position 1-5					
	I	II	III	IV	V
A	1.8	1.0	2.2	1.0	2.4
B	3.4	3.4	3.6	5.2	3.6
C	2.2	1.8	1.2	2.8	2.6
D	5.0	2.0	2.4	2.0	2.0
E	2.4	1.4	3.2	4.2	2.4
Av.	3.0	1.9	2.7	3.1	2.6
Position 23-27					
A	7.8	4.8	6.8	3.6	4.2
B	8.8	11.6	6.2	4.0	6.8
C	8.8	4.6	7.4	7.4	4.6
D	4.4	4.0	4.0	5.4	5.2
E	11.0	5.2	6.6	6.4	10.6
Av.	8.2	6.0	6.2	5.4	6.3
Position 46-50					
A	1.4	0.8	1.6	0.6	0.8
B	2.2	1.4	1.4	1.8	1.6
C	1.0	1.6	1.6	0.6	1.6
D	2.8	2.4	1.6	1.0	2.2
E	2.4	5.0	1.8	0.8	2.0
Av.	2.0	1.3	1.6	1.0	1.6

cessive series are reached. If memory has operated at all, it must have operated in positions 1-5 and 46-50; from positions 23-27 it is practically excluded. As there is nothing save consistent differences in size to distinguish them, it seems justifiable to infer that memory has in no way made the end judgments less independent than the middle ones. For this reason also, some other explanation must be assigned to the fact that the m. v.'s of the middle and end positions in the repeated arrangements are more different than those of the analogous positions in the individual arrangements by the ten subjects.

In the last column of Table IV *a* are given the averages of the m. v.'s of each series, the total variability of the five successive series for each subject. There is here a difference of about 2:1, B varying the most from his own judgments with 6.21, D the least with 3.06. The average of all the variabilities is 4.7. Following are the variations of each of the ten subjects from their average:

TABLE V

A	B	C	D	E	F	G	H	I	J	Av.
9.34	10.94	12.98	8.68	11.54	10.34	12.46	9.32	9.12	9.34	10.48

A somewhat significant comparison is afforded between the variability of subjects A-E from the average of the ten, and their variation from their own judgments as given in Table IV *a*. Those who vary least from their own judgments also

vary least from the judgments of others. Thus D, whose preferences are the most consistent with her own, also agrees best with the judgment of others. A is next in both (among subjects A-E), and the entire orders agree with 20 per cent of displacement. The observations are too few to do more than suggest a general principle, but their interpretation is a rather interesting one. The critic who best knows his own mind would seem the best criterion of the judgments of others. I have elsewhere argued, mainly on theoretical grounds, against the validity of accepting the accordance of a judgment as indicative of its accuracy, but figures like the above are an empirical demonstration in its favor. This matter will be recurred to towards the close of this paper.

With respect to such judgments as those with which we are dealing, the variability of different individuals is seen to be more than twice as great as the variability of different judgments by the same individual. Each individual's judgments form a distinct species of their own, and the opinions expressed are thus in a high degree personal and subjective.

Brief attention may be called to the character of the individual variations themselves. The distribution of the m. v.'s for the averages of the ten subjects has already been given. For the five consecutive judgments of subjects A-E, the m. v.'s are distributed as follows:

TABLE VI

DISTRIBUTION OF THE MEAN VARIATIONS OF EACH SUBJECT

Subject	Vari- ation	0	5	1	1.5	2	2.5	3	3.5	4	4.5	5	5.5	6	6.5	7	7.5	8	8.5	9	9.5	10	10.5	11	11.5	12	12.5
A	No. cases	2	3	4	2	8	2	5	6	5	3	2	1	4	2	..	..	1	..	..	..	..	..	..	..	..	..
B	"	..	..	3	2	..	1	4	1	5	1	2	3	7	..	..	3	3	4	4	2	2	..	1	..	2	..
C	"	1	2	2	..	4	1	6	1	3	3	2	2	2	3	2	..	4	3	1	5	2	1	..	..	..	..
D	"	..	2	3	6	7	9	8	3	3	3	3	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..
E	"	1	1	2	..	3	..	6	5	4	5	3	6	..	2	3	2	3	1	1	..	..	..	1	..	1	..

There is a suggestion of species in the distributions for subjects B and C, as though there were a type of card in which the judgments were likely to vary more than in others. The remainder do not show this characteristic. The largest single mean variation is 12.8, made by subject E on card 6264, which stands 31st in this subject's series. The zero cases are from first and last places, with one exception presumably remembered from time to time.

Following are the distributions of the individual variations in the successive judgments. They are

TABLE VII

DISTRIBUTION OF THE SINGLE VARIATIONS

Subject	Vari- ation	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	
A	No cases.	28	56	43	30	23	20	19	5	9	1	..	2	..	..	1	1	1	..	..	..	..	1	..	..	..	..	..	..	..	..
B	"	13	32	27	20	18	23	15	22	14	12	12	9	5	7	3	5	4	1	3	2	1	2	1	2	..	..	..	..	..	..
C	"	14	28	35	16	18	26	17	12	10	15	10	7	8	6	5	4	3	1	3	1	..	..	..	..	..	..	..	..	..	..
D	"	26	47	47	36	23	18	21	12	5	3	2	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
E	"	21	31	22	27	30	16	23	18	10	10	4	6	4	3	2	4	2	3	1	1	1	2	..	..	..	..	..	..	..	..

ordinary skew distributions with no striking features. The variability of the single judgment seems

to be distributed practically according to chance, limited, of course, at the small end.

In a previous study ¹ attention was called to the fact that in many consecutive orders the difference in position as indicated by the average did not bear a very strict relation to the reliability of the judgments as given in the probable error. Small differences might exist side by side with small p. e.'s, and large differences with large p. e.'s. On account of the lack of material for empirical analysis the question was merely indicated, but an examination of the longer ranges obtained in the present experiment indicates that the difference between any two consecutive positions is not given in the averages and p. e.'s or even in the entire distributions, but that some refinement of the treatment is necessary.²

¹ "A Statistical Study of Literary Merit," *Archives of Psychology*, No. 7, pp. 17-19.

² The actual relationships between the probable error and the average difference in consecutive positions have been calculated by the Pearson and Woodworth methods. The relationships are naturally negative, though not so much so as they might be, the figures being as follows:

TABLE VIII
RELATIONSHIP OF P. E. AND A. D. P.

Subject	W	P
A	57	-15
B	51	-30
C	75	-60
D	53	-33
E	64	-41

(Note that under W a figure above 50 indicates negative correlation.)

Let us consider more in detail the following portion of our results, positions 21–25 in the records of subject E. The grades here assigned to the cards in 21st–25th positions with their averages and m. v.'s are as follows:

TABLE IX

21	30	19	25	14	20	21.6	4.8
22	33	14	18	30	15	22.0	7.6
23	13	17	42	8	38	23.6	12.8
24	9	29	24	25	40	25.4	7.2
25	28	21	16	39	30	26.8	6.6

The weakness of the unsupported average and probable error as measures of the difference between two consecutive objects lies in the fact that they take no account of the coincidence of the grades which form them, and which ought to be a most important factor in the situation. Suppose, for example, we wish to determine E's attitude toward the cards whose averages place them 22d and 23d on the list. Out of the five judgments we see that in three cases, in two of a considerable margin, 22 was preferred over 21, and only the extreme fourth case gives it a slightly lower place. So much is not fully indicated in the m. v. The point is perhaps better illustrated in positions 24 and 25. In series I and IV there is extreme preference, outside the limits of the m. v.'s for 24 over 25, and the remainders show an almost equally

Experiments on Color Vision

The apparatus used in these experiments¹ consisted of a series of 28 cards upon which were fixed, side by side, two silk skeins of differing colors. The colors were numbered 2, 4, 6, 8, etc., and the first card, known as 2-4, bore colors 2 and 4, the next 4 and 6, and so on up to 54-56, when the next bore 56 and then again the first color, 2. The colors thus ran through a complete circle, starting at the reds, and running through the yellows, greens, and purples back again to the reds. It was not attempted to have the series consist of saturated colors. The steps between the colors composing the pairs are not equal for sensation, and the original object of the experiment was to determine whether measurement by relative position would afford a means for stating the differences between the steps in a workable statistical form. Certain of the results are, however, germane to the present subject. The procedure was to have the subject arrange the pairs in order of the degree of their differences, the pair which differed least being counted 1, the next nearest as 2, the most dissimilar pair receiving a grade of 28. Arrangements were obtained from ten subjects, the order, positions, and mean variations being as follows:

¹ This material was being employed in a study of the quantitative measurement of color perception by Miss Mildred Focht of Columbia University, who kindly loaned it to me for the purpose of these experiments.

TABLE X

1	26-28	2.6	1.6
2	44-46	3.3	2.3
3	40-42	4.8	3.4
4	56-2	5.0	0.9
5	10-12	5.9	2.7
6	52-54	7.0	2.2
7	16-18	7.0	3.6
8	22-24	7.5	1.9
9	54-56	9.0	2.0
10	36-38	11.7	2.3
11	20-22	11.8	3.0
12	28-30	11.8	5.5
13	46-48	12.1	2.3
14	4-6	13.5	2.5
15	50-52	16.0	3.8
16	38-40	16.2	3.8
17	48-50	17.0	2.2
18	18-20	17.4	4.6
19	8-10	17.7	2.9
20	30-32	19.1	3.7
21	34-36	19.5	3.5
22	2-4	21.7	2.3
23	32-34	23.0	2.6
24	12-14	23.1	1.1
25	6-8	24.6	1.6
26	42-44	25.2	0.4
27	14-16	26.6	0.6
28	24-26	27.9	0.1

Color vision being something more objective than preference for souvenir postal cards, we find that the variability of the judgments is much smaller, the average m. v. of ten individuals for 50 postal cards being 10.8, and for estimations of the color differences but 2.4. The individual variations of each subject are distributed as follows:

TABLE XI

Subject	VARIATION														
	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14
A	3	5	6	7	3	..	..	1	..	1	2				
B	6	8	4	2	1	1	..	1	..	2					
C	6	6	9	2	..	2	1	1	..	..	..	..	1		
D	4	6	2	4	3	3	2	1	2	1					
E	4	7	5	7	1	2	2								
F	5	10	5	3	4	1									
G	8	8	4	2	4	1	1								
H	5	6	6	2	6	2	..	..	..	..	1				
I	5	7	6	6	..	..	2	1	..	..	1				
J	4	6	8	1	1	2	1	1	2	1	..	..	..	1	
Total	50	69	55	36	23	14	9	6	4	5	4		1	1	

There are six cases, two for A, one for C, and three for J, in which a pair is placed in a position differing from the average by more than three times the m. v. If such cases as these are not due

to chance, they demonstrate individual differences in color vision similar to those obtained in Henmon's experiments.¹ To make a rough determination of how far they might be due to chance, seven of the subjects arranged the series once more. These included subjects C and J, but it was unfortunately impossible to obtain another record from A. All of the divergences appear explicable as a result of chance. However, in calculating the m. v.'s of each subject in the two successive arrangements, the m. v.'s of each subject from his own judgment were considerably smaller than the mean of his variations from other subjects, the figures being as follows:

TABLE XII

Subject	C	D	E	G	H	I	J
Av. var. 2 succ. j. .	0.89	1.8	1.7	0.98	1.5	1.3	1.8
Av. var. j. 6 oth. ind.	2.3	3.3	2.3	1.7	2.4	2.3	3.2

There is still evidence of separate species in the judgments of each subject. The peculiar correspondence above noted between the amount of variation from one's own judgment and from the judgment of others appears here as in the postal cards. Between the two orders of Table XII there is 14 per cent of displacement; the more constant judges are the more accurate. As the objectivity of the experimental material increases, we should expect this correspondence to be closer.

¹ "The Time of Perception as a Measure of Differences in Sensation," *Archives of Phil., Psych., and Sci. Methods*, No. 8, 1906.

Experiments with Weights

It seemed best, for comparative purposes, to supplement the foregoing observations with a series of experiments in which the actual differences should be capable of determination by strictly objective methods. Weights are probably the most suitable material for this purpose. The apparatus consisted of six weights, 51, 53, 55, 57, 59, 61 grams, respectively.¹ The weights were made of dead black pasteboard boxes, $1\frac{3}{16} \times 3\frac{1}{8} \times 2\frac{1}{16}$ in., filled with lead and cotton to the required heaviness, and sealed. In the experiments the long axis of the weight was always toward the subject. The observations include 100 arrangements of the weights by one subject, and 10 arrangements by each of ten subjects. Of the subjects, G-J were normal individuals, the remainder being male patients in the hospital. Subject A is a man of 65, whose mental defect is a mixed paraphasia and object blindness. At the time of the experiments he could read and could name letters almost normally, but could not name objects, though they were recognized. Memory was much impaired. He co-operated conscientiously. B, æt. 52, is an early stage of general paresis, mildly euphoric. He co-operated willingly, but went at the test in a quick hit or miss fashion. C, æt. 72,

¹ The exact weights as measured on the scales of the physiological laboratory showed a practically constant excess of .4 gr. for each weight.

is a convalescent from a third attack of depression. Co-operated willingly, but showed a constant error in the shape of a tendency to leave the weights in the random order in which they were placed before him. D, æt. 64, manic-depressive, one previous attack of depression, at present mildly exhilarated. Co-operated willingly and conscientiously, but made frequent pauses between the arrangements on account of "fatigue."

E, æt. 38, first attack of manic-depression, mixed phase, mildly exhilarated at time of experiment. Showed same tendency as C in leaving weights as at first placed. F, æt. 32, practical recovery from fourth attack of depression. Interested in experiment, and co-operated best of any of the patients, also doing the test exceptionally well. One other subject, a depression, actively lost interest after four trials, and failed to co-operate further. Each patient was held to a fixed system of procedure, analogous to that adopted by normal subjects. Only F would move the weights of his own accord, the others merely gave their judgments. The detail of their results *qua* from abnormal subjects I hope to discuss at some future time in connection with other observations. The data from the normal and abnormal subjects are quoted separately. As will be seen, two of the patients do normally, one exceptionally, well, while the remaining three do rather poorly. On the whole, there is nothing in the results to indicate a distinct species of per-

formance in the abnormal subject as a class. The general average is probably as valid for present purposes as one from ten normal subjects.

The following tables give the results of 100 arrangements by the single subject:

TABLE XIII

AVERAGES											Av.	M.V.
Series	I	II	III	IV	V	VI	VII	VIII	IX	X		
61	1.3	1.2	1.8	1.5	1.4	1.0	1.2	1.3	2.0	1.1	1.4	.24
59	2.3	2.6	2.7	2.1	2.6	2.5	1.9	1.9	1.5	2.0	2.2	.32
57	3.4	3.3	2.9	2.7	2.4	2.8	3.0	2.9	3.2	3.1	3.0	.23
55	3.7	3.8	4.3	5.0	4.8	4.3	5.2	4.7	4.8	4.8	4.6	.40
53	5.5	5.4	4.1	4.5	4.8	5.1	4.1	5.0	4.5	4.6	4.8	.40
51	4.8	4.9	5.2	5.2	5.0	5.3	5.6	5.2	5.1	5.5	5.2	.28
Displace- ments of average }	1	1	1	1	1	0	1	0	2	1	0.9	.29
Average of displace- ments }	2.5	2.8	3.6	2.5	2.6	1.7	1.6	1.7	2.9	1.4	2.3	

Each column contains the average of a series of ten single arrangements. It will be noted that in only two cases out of the ten does the average order correspond with the objective one. Although the general average of the hundred arrangements gives the objective order, yet the displacements in the single series are hardly distributed according to chance. The fifth weight, 53, stands fifth with a position of 48 in the general average, but in five

series it stood above 55, in two below 51, and in only two cases did it stand in its proper position, thus accounting for seven out of the nine displacements of the averages of the series. In four of the seven cases, namely in series I, II, IV, and VII, the negative difference lies outside the limits of the probable error. VII is particularly striking on account of its high reliability throughout.

As the average should theoretically give the correct order no matter how poor the individual's judgment, the average of the displacements of each individual arrangement from the objective order is a better measure of difference between the accuracy of the successive series. The m. v. of the average order should also afford a measure of discriminativeness. According to both these measures the successive series show considerable practice, the average of the second five being a little over two-thirds that of the first five. The drop is unusually sudden. It may be observed that the displacement of the average and the average of displacements for the individual series are only moderately correlated. The average of displacements and the size of the m. v. are correlated within five displacements of their respective orders, or 11 per cent. We are here afforded an opportunity for examining empirically the accordance of an individual series with the average as a measure of the relative reliability of the successive series. As the average orders in the individual

series depart from the objective order, the method does not show up well. Between the accordance of each series of ten arrangements to their average, and the average of their displacements from the objective order, there are 20 displacements, 44 per cent; between the accordance of each series to their average, and the size of the m. v. in each series, there are 17 displacements, 38 per cent.¹ The mean variations of each series of ten arrangements from their averages (*i. e.*, the m. v.'s of the averages in the preceding table), are given below.

TABLE XIV

MEAN VARIATIONS											Av.
Series	I	II	III	IV	V	VI	VII	VIII	IX	X	
61	.58	.32	.96	.70	.64	.00	.32	.48	.60	.18	.48
59	.66	.92	1.10	.36	.92	.50	.36	.36	.60	.20	.60
57	1.18	.84	1.01	.82	.60	.80	.20	.48	.98	.36	.73
55	.96	1.40	.82	.60	.80	.56	.48	.76	1.08	.79	.66
53	.60	.84	1.32	.80	.72	.76	.40	.60	.60	.80	.74
51	1.00	.74	.80	.80	.80	.66	.48	.80	.90	.60	.76
Av. m. v.	.83	.84	1.00	.68	.75	.55	.38	.58	.79	.49	.69

The average of the m. v.'s is naturally some-

¹ This is in part due to the fact that the poor judgments draw the end weights toward the middle while the good judgments keep them at the ends, thus getting a high variability for the extremes; if we take only the two middle weights, 57 and 55, we have from the average of displacements 17 displacements, or 38 per cent, instead of 44 per cent.

what larger than the m. v. of the averages, as given in Table XIII. It will be noted that the psychophysical relationship plays little part in these results; the difference between 51 and 53 should be greater than that between 59 and 61, but so far as can be judged from the results, 61 is more easily distinguished from 59 than 53 from 51. This is surprising, as the one hundred arrangements ought to be sufficient to bring out such a difference. The m. v.'s of the averages, as given in Table XIII, are smallest at the ends, as they arithmetically should be; but the averages of the m. v.'s, in Table XIV, seem to increase as the weights become smaller.

We may now compare the variation of the single subject through ten successive series, with the variation of ten different subjects through a single series of ten arrangements each. The results of these experiments are summarized in Tables XV and XVI.

The figures present the same general characteristics as those in Tables XIII and XIV. The single subject has varied from his own judgments a little less than the ten subjects among themselves, but this is in part due to practice, which brings down the m. v. If we take the m. v. of the first five series in which practice is not evident to any marked degree, and compare this with the variation of the four normal subjects, we see that the single subject has varied from himself rather more than the four normal subjects among themselves.

TABLE XV

Subject	AVERAGES										Av.	M. V.	Av. 6 path.	Av. 4 nor- mal
	A	B	C	D	E	F	G	H	I	J				
wt. 61	1.4	1.7	1.7	1.5	2.4	1.5	1.3	1.8	1.1	1.4	1.6	0.26	1.7	1.4
59	2.8	2.8	4.0	2.1	2.7	2.3	2.3	2.6	1.9	2.0	2.5	0.43	2.6	2.2
57	2.8	3.7	4.0	3.0	2.6	2.6	3.4	3.0	3.0	3.1	3.1	0.32	3.1	3.1
55	4.1	4.1	3.4	4.3	4.3	4.2	3.7	4.4	4.1	4.6	4.1	0.24	4.0	4.2
53	4.3	3.8	2.8	5.1	4.3	4.9	5.5	5.0	5.0	4.3	4.5	0.60	4.2	4.8
51	5.6	4.9	4.9	5.0	4.8	5.6	4.8	5.2	5.8	5.0	5.2	0.32	5.2	5.2
Displace- ment of averages	0	1	4	1	1	0	1	0	0	1	0.9	..	...	...
Av. of displace- ments	2.5	4.1	4.9	2.4	4.7	1.8	2.5	2.3	0.7	2.7	2.9	..	3.4	2.1

TABLE XVI

Subject.	MEAN VARIATIONS										Av.	Av. 6 path.	Av. 4 nor- mal
	A	B	C	D	E	F	G	H	I	J			
wt. 61	0.48	0.58	0.60	0.60	0.84	0.50	0.58	0.68	0.09	0.56	0.55	0.60	0.48
59	0.88	1.20	1.40	0.74	1.31	0.82	0.66	0.60	0.09	0.60	0.83	1.06	0.49
57	1.20	1.36	1.00	0.70	1.50	0.86	1.18	0.80	0.20	1.16	1.00	1.10	0.84
55	0.74	1.51	1.40	1.09	1.10	0.48	0.96	0.88	0.46	1.08	0.97	1.05	0.84
53	0.73	1.04	1.24	0.54	1.27	0.92	0.60	0.60	0.40	0.75	0.81	0.96	0.59
51	0.60	1.04	0.94	0.80	1.12	0.48	1.00	0.66	0.16	0.40	0.72	0.83	0.58
Av. m. v.	0.77	1.14	1.10	0.75	1.19	0.68	0.83	0.70	0.22	0.76	0.85	0.93	0.64

The figure for the single subject is .82, for the six patients it is .93, and for the four normal subjects .64. This is anomalous, for the variation of an individual should only approach the limit of the variability of the group and not exceed it.

Nevertheless, a striking contrast is formed to the relative variations in the repeated judgments of the postal cards, where each subject's judgments were a distinct species of their own.

In Table XV the record of subject C contains two very coarse deviations from the objective order. There is a remarkable overestimation of 53 and a lesser one of 55, while 57 and 59 have correspondingly low positions. It may be remembered that this subject showed a tendency to leave the weights as they were put before him, and in random arrangements 53 would ordinarily occupy a position higher than its objective one, 59 a lower. But so would 51 and 61, which are unaffected. Subject I underestimates 53, J overestimates it. Altogether, 53 is seen to have a very peculiar behavior.

Comparing, as in Tables XIII and XIV, the average of displacement with the average m. v., we find between them four displacements, 9 per cent. The order of discriminativeness of the ten subjects as measured by the accordance of their individual averages with the average of the ten, gives 14 displacements from the average of displacements and 15 from the size of the average m. v., 31 per cent and 33 per cent respectively. The displacements of the two middle weights, 57 and 55, from the average of displacements are 11, or 24 per cent instead of 31 per cent, for the whole six weights. This result thus agrees strikingly

with the result for the single subject. The final average order being correct in both cases, it would seem that, empirically, the number of displacements of an individual order from an average gives a better idea of its relative correctness than the precise arithmetical amount of its deviation from this order. It may then also be used in cases where there is no objective, only an average order, as in judgments of mental traits.

Evidence of the psychophysical relationship is again absent; 61 has a much smaller m. v. than 51, while those of 59 and 53 are practically equal. The m. v.'s are here largest in the middle, as they should be.

Conclusion

We have thus made a brief study of variability in three classes of judgment; first, the highly subjective feeling of preference for different sorts of pictures, second, the more objective judgment of color differences, and finally of a type of judgment whose accuracy could be readily measured by objective means. It has appeared that in the first class the judgments of each individual cluster about a mean which is true for that individual only, and which varies from that of any other individual more than twice as much as its own judgments vary from it; that in the second class, with the colors, the variability of the successive

judgments and those by different individuals markedly approached each other, but still preserved a significant difference; while in the third class, with the weights, we found that there might be even an excess of the individual variability over the "social." This comparison seems to afford, to a certain extent, a *quantitative criterion of the subjective*.

In objective fields those who vary least from their own judgments are, in the absence of constant error, those of the most reliable judgment; indeed, the constancy of our own opinions among themselves seems to be more important than their agreement with the standard of others. It is noteworthy that those who vary less from their own judgments are more likely to vary less from the judgments of others in the cards and colors than in the weights; it has been shown that this cannot be ascribed wholly to the small ranges with the weights.

It has again appeared in these experiments that even in those fields that we might ordinarily term most strictly objective, there are often certain relations between compared stimuli that are constant and peculiar to the individual. The same phenomenon appeared in Henmon's work on color-differentiation, two pairs of colors not necessarily standing in the same relation to each other with two individuals. The writer also observed it in experimenting with sounds of language, there oc-

currence a constant tendency to hear certain sounds rather than others, which differed with the individual. This is, however, most difficult to understand with our weights, for it would seem to indicate that the differences were not only of kind, but also of degree. The situation is not one that could be readily accounted for by displaced centres of gravity. This peculiar phenomenon, for which sensation habit is perhaps as good a term as any, is one that stands in much need of special and accurate investigation.

**THE VALIDITY OF JUDGMENTS OF
CHARACTER**

THE VALIDITY OF JUDGMENTS OF CHARACTER

BY NAOMI NORSWORTHY

THE problem of the judgment of character is one which is continually confronting people of all classes and stations. In many instances the correct estimate of a person's character is of vital importance. The success of officers of administration from the President of the United States to the school superintendent of a small village depends often on their ability to choose for their subordinates persons of the proper character. In everyday life one's happy choice of friends, one's ability to sell goods, to persuade people to accept a new point of view or doctrine, to get on harmoniously with people in general in all the various occupations of life depends upon one's ability to estimate the powers, capacities, and characteristics of people. To those who have to make personal recommendations or make use of those made by others, this question of judgment of character is a grave one. Is it possible for one to judge at all fairly the character of another? When a recommendation is read by an appointing officer, how

far does he get the estimate of character which the writer intended him to have? If the question concerned some physical facts about an individual such as his acuity of vision or his height, there would be no difficulty in obtaining a figure which would express his exact position in this measurement as compared with other people. Even if the question concerned some definite mental trait such as his speed of reaction or perception, or his ability to deal with abstract ideas within a certain field, an exact numerical answer could be given. But with such a complex thing as leadership, efficiency, refinement, and the other vague and indefinite traits to which we refer when we use the term character, much doubt may be felt as to whether exact quantitative estimates are possible. This then is the chief problem of this paper. Can such a trait as leadership or refinement be measured in numerical units with any degree of exactitude? Most people will agree at once that such traits as those mentioned cannot be measured in ordinary units of amount, for, in the first place, the zero points from which to begin the reckoning are not known, and in the second place, these traits manifest themselves in such complicated and subtle ways that the task of expressing them in units of amount is hopeless. Though this method cannot be followed, the method of measurement by relative position in a series might be. People might be ranked in order according to their power of

leadership or according to their refinement, and if this were proved to be possible, the numerical rating by such a means would be just as exact as though the rating represented units of amount. This method has been used recently by Professor Cattell in his study of the eminence of men of science.

The traits which I chose for investigation were the following: physical health, mental balance, intellect, emotions, will, quickness, intensity, breadth, energy, judgment, originality, perseverance, reasonableness, clearness, independence, co-operativeness, unselfishness, kindness, cheerfulness, refinement, integrity, courage, efficiency, and leadership.¹ The question then is: Is it possible to give anyone a rank or position in these characteristics with any degree of exactness?

Individual X, a teacher, was given grades in the above traits by five judges, the mother and the two adult brothers of X, an intimate friend and a colleague in the university, who assigned these grades to X in accordance with the following directions: Give X her position among a hundred college instructors of about the same age in each of the traits mentioned. A rank of 100 in any trait would mean that X stood, in the opinion of that judge, as highest among the hundred instructors; a grade of 1 would mean that she ranked as

¹ These were selected by Professor Cattell and were used by him in some of his work.

lowest. Similarly a grade of 80 would mean that of the hundred 19 ranked higher and 79 lower than she; 34 would mean that 65 ranked higher and 33 lower than she, etc. Two records were taken from each judge, the time between the two varying from six weeks to four months. The gradings were as given in Table I.

The first question to be raised on examining these gradings would probably be, Do they mean anything? If we had rankings of X by a thousand such judges instead of by five how would the two sets compare? How closely do these rankings approximate the true ranking of X, meaning by true ranking the ranking given by all the competent people who know X well.

That these rankings mean something and are not the result of random choice or chance is proved in two ways. (1) In the second trials, the same judge does not diverge far from his first rating. (2) The double judgments of the five judges do not diverge far from each other.

To answer this question it is not necessary to use the whole series of traits. The following eight traits have been selected: intellect, quickness, breadth, originality, co-operativeness, refinement, efficiency, and leadership. In the two trials with these traits the average difference of the first judgment from the second in the case of A is 9.5. The average difference of the two trials from the average of the two (the A. D. dis) is 4.7. A judgment

TABLE I

	A		B		C		D		E	
	1st	2d	1st	2d	1st	2d	1st	2d	1st	2d
Physical health	60	70	50	50	60	50	55	45	37	40
Mental balance	53	80	80	90	70	90	82	82	83	85
Intellect . . .	95	90	95	90	90	90	92	88	80	84
Emotions . . .	40	60	80	85	50	60	85	77	63	50
Will	90	90	90	90	90	89	90	78	75	70
Quickness . .	95	85	90	95	90	86	98	92	100	100
Intensity . . .	85	85	80	90	60	65	88	83	80	85
Breadth . . .	40	50	75	75	60	80	45	45	51	63
Energy	75	75	90	85	80	86	90	82	80	90
Judgment . . .	62	80	85	80	60	75	88	78	90	90
Originality . .	48	60	70	75	50	50	85	87	60	66
Perseverance .	88	85	90	85	90	98	78	65	73	80
Reasonableness	45	80	75	70	50	60	65	55	83	80
Clearness . . .	87	100	85	75	85	80	88	75	80	85
Independence .	85	90	80	60	80	80	92	77	60	65
Co-operativeness	50	60	85	80	87	86	65	40	99	95
Unselfishness .	77	90	95	85	95	99	95	85	90	90
Kindliness . .	87	90	90	85	90	65	90	92	100	95
Cheerfulness .	73	80	90	90	90	86	68	72	83	85
Refinement . .	69	95	95	95	95	89	88	75	85	75
Integrity . . .	93	100	95	95	99	99	98	92	83	90
Courage	85	95	98	90	85	60	75	62	65	75
Efficiency . . .	84	85	90	95	80	70	88	75	95	99
Leadership . .	73	75	80	70	50	60	90	77	69	57

A and B were the two adult brothers of X.
C was the mother.

D was the friend.
E was the colleague.

on the scale of 100 made twice has a reliability of $\frac{A. D. dis}{\sqrt{n}}$ or in this case 3.3. This means then

that the chances are 99 to 1 against *his* true judgments differing from 92.5, 90, 45, 54, 55, 82, 84.5, and 74, which are the average judgments of the two trials, by more than 10. Following the same method with the other four judges, the reliability of the average judgment of B is 1.77; that of C is 2.12; that of D is 3.33; that of E is 2.34; the reliability being measured in each case by the probable average divergence of the true judgment from that obtained by only two trials. Such judges as these then, in two rather casual and hasty ratings of an individual, approximate closely to the results they would give if they rated the individual an infinite number of times. Each judge's measures are at least characteristic of him.

In the second place, the five judges do not diverge far from each other in their estimates of these eight traits, as is shown by the table below.

This means that if we had an infinite number of such judges of X's intellect the chances are about 6 to 4 against their differing from 90 by more than 1.16, and 99 to 1 against their differing from 90 by more than 3.6. These two facts then, first that the individual judges in their second rating do not diverge far from their first, and second, that the five judges in their rating of these traits do not

diverge far from each, prove that the ratings do stand for some actual quantitative value and are not subject to mere chance. Character then can be measured quantitatively. Such complex traits

TABLE II

	Median of the five ratings	Average de- viation of the five from their median	Probable average divergence of the median of the five from the median of an infinite number of such judges
Intellect	90.0	2.6	1.16
Quickness	92.5	4.4	1.97
Breadth	57.0	11.0	4.93
Originality	63.0	10.7	4.79
Co-operativeness . .	82.5	15.2	6.81
Refinement	82.0	5.5	2.46
Efficiency	84.5	6.7	3.00
Leadership	74.0	6.1	2.73

as refinement, leadership, etc., can be rated numerically.

The validity of the judgments in the sense of their correspondence with the actual character of X is then only a matter of the impartiality of the group of judges. If these five judges did as a group represent an impartial judgment of X the ratings of Table II would represent measures of character more valid and more precise than the

measurement of an individual's discrimination of length or reaction time or memory span obtained from five trials of the kind customarily made.

The certainty of impartiality in the judges can of course never be attained. All the world may be wrong. A working certainty is obtained by selecting judges at random from those who are intellectually competent and are trained in observation of human nature.

These conclusions would be insecure if based on the case of X alone, but they have been fully corroborated by various partial studies of the validity of judgment by other judges of other individuals. For instance, nine members of a college sorority were graded by five of their number with respect to this same list of traits. The different individuals of the nine do not receive the same grades and the different judges do agree to a large extent in their grades of the same individual. That is, the judgments are by no means random; are reasonably precise; and are valid in so far as the judges are impartial. The results obtained in the sample case of X may be expected in general.

From such a series of measurements as those in Table II, the question arises, How far is the *order* of excellence of X in the various traits shown by the table reliable? The reliability of a difference between two measures equals the square root of the sum of the squares of the reliabilities of the

measures themselves. The reliabilities of the order ascertained may be seen from Table III.

TABLE III

	Rating	Order	Obtained differences	Average divergences of "true" differences from the obtained differences
Quickness . .	92.5	1		
Intellect . . .	90.0	2	2.5	2.3
Efficiency . . .	84.5	3	5.5	3.2
Co-operativeness	82.5	4	2.+	3.9
and				
Refinement . .	82.0	5	..	..
Leadership . .	74.0	6	8.+	7.4
Originality . .	63.0	7	11.0	5.5
Breadth . . .	57.0	8	6.0	6.9

In so far as the judges are as a group impartial in their ratings of X in each of the traits in comparison with their average ratings of X for the whole eight (and that they are approximately so, there can be little doubt), there is certainty (in the score of a probability of 99 to 1) that X is higher in Quickness than in Refinement, Leadership, Originality, and Breadth; that she is higher in Intellect than in Leadership, Originality, and Breadth; and so on with other comparisons. The order Quickness-Intellect (1), Efficiency, Co-operativeness, or Refinement (2), Leadership (3), Originality and Breadth (4), is practically certain.

Having then a true estimate of X's rank in these traits, this knowledge might be used to obtain an answer to the question, Is the ability to judge character a measurable power? It might be possible to rank people in their ability to judge the character of others in the same way that we rank people in their ability to read German, or react to a sound, or sort grays. To test this possibility two college classes were asked to rank X in the twenty-four traits before mentioned. The directions given were the same as those given to the five judges with the additional request that no names appear on the papers. This was done in order that the judgments be as frank as possible. Three hundred and eighty-seven papers were received, and of these 200 were picked at random. The order of the eight traits determined by the five judges was taken as the standard order. The sum of the variations of each individual's judgment from the true order was found. For instance, one student ranked X as follows: 1 refinement, 2 intellect, 3 co-operativeness, 4 breadth, 5 quickness, 6 leadership, 7 efficiency, 8 originality. The variations of this ranking from the order given by the five judges are 3, 0, 2, 4, 4, 0, 4, 1 and their sum is 18. The 200 students were then distributed according to the sum of errors of displacement from the true order. The total distribution is shown in Fig. 1.

This means that there were four students, who in ranking X in the eight traits, made only 6-7

errors from the standard order, that there were 32 students who made 14-15 errors from the standard order, etc. It is evident that the sums of the variations from the standard order range from 6 to 24. Probably this does not mean that one

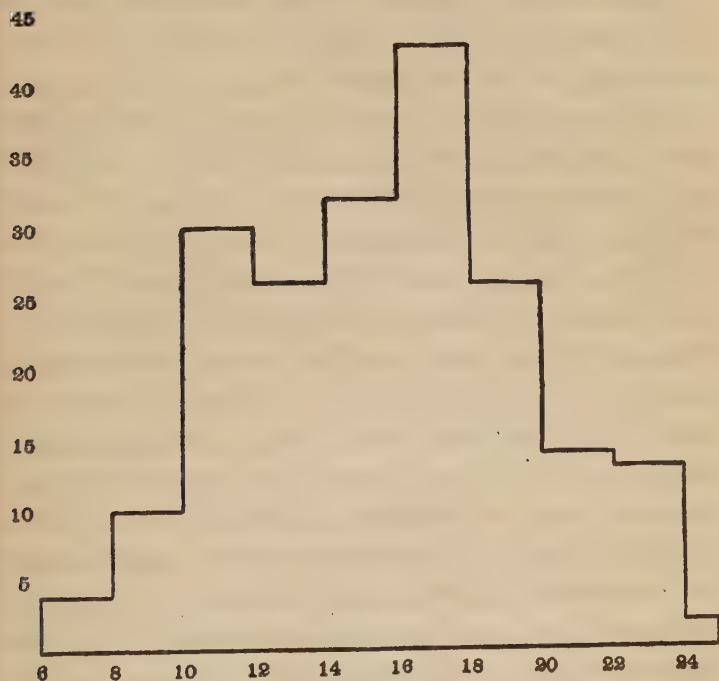


FIGURE 1

student is four times as good a judge of character as another. The students differed somewhat in amount of knowledge of X as well as in capacity to judge and the variations due to chance are large. But the data do give reason to believe that people differ from each other in this ability as they do in

mathematical ability or in ability to spell, and that these differences in accuracy of judgment of character can be measured conveniently and precisely by first securing a true standard order of characteristics in say ten persons, who as a group are equally well known to the individuals whose power of judgment we wish to measure, and then proceeding as in the experiment.

This variability in people's power to judge character suggested two further questions: (1) Are there some people about whose character there will be a greater difference of opinion than about others? (2) Are there certain traits about which there is less agreement in judging them than others? To answer the first question it was necessary to have a group of people of about the same age and social standing who knew each other somewhat equally well. A small sorority in a college was decided upon as fulfilling these conditions fairly well. The list of characteristics with the directions as before were given to ten members of this sorority and each was asked to rank every other in all the traits. Three of the girls failed to send papers. The first step in dealing with the seven papers was to ascertain whether the same standard for judgment had been used by each one. To do this the grades of each observer were distributed and her median obtained. It was found that one of the observers had used a very much lower standard than the others, therefore her estimates were

omitted. The remaining six approximated very closely the same standard — 60 as Med. This left five judgments for each girl in every trait. The Med. and A. D. of the five judgments of each trait for A were obtained. Then the average of the A. D. was found. The same was done for each of the other subjects. This average for each individual showed the relative variability of the judgments of these sorority members in the case of each other. They are as follows: A, 8.0; B, 7.5; C, 7.5; D, 7.5; E, 6.6; F, 6.5; G, 6.5; H, 6.1; I, 5.7; J, 4.1. From these figures it would seem that among ten girls who know each other well there may be twice as much difference of opinion about some one member of the group as about some other. A, about whom there seems to have been most difference of opinion, was ranked as below the average college girl in seven of the traits. J, about whom there seems to have been most agreement, was ranked at about the average, from 50 to 55 in most of the traits.

The second question, as to the variability in the judgments of certain traits, brought to light some interesting, if not very significant, results. As they were obtained from such a small number of judges, they are only tentative. The papers sent in by the sorority members were used. The average of the A. D. for each trait for all individuals was obtained to show the relative variability of the different traits. The results are as follows:

566 JUDGMENTS OF CHARACTER

Physical health	6.1	Reasonableness	5.7
Mental balance	5.4	Clearness	5.0
Intellect	6.4	Independence	6.5
Emotions	6.0	Co-operativeness	7.5
Will	6.5	Unselfishness	7.0
Quickness	5.8	Kindliness	8.3
Intensity	7.5	Cheerfulness	7.4
Breadth	6.1	Refinement	7.7
Energy	7.2	Integrity	8.6
Judgment	5.2	Courage	7.9
Originality	5.1	Efficiency	6.1
Perseverance	6.7	Leadership	6.8

The most noticeable fact about this series is that there is comparatively little variability — the figures follow each other very closely, there being but a difference of 3.6 between the lowest and the highest. However, it is interesting to notice that the traits about which there is most difference of opinion are Integrity, Kindliness, and Refinement. Evidently people use the words loosely or their standards for judging these particular traits vary much more than most of the others do. From the standpoint of recommendation blanks sent out by agencies, etc., this is rather unfortunate, for the blanks mentioned always include matters of integrity and refinement and from these figures it seems probable that any individual opinion would be less reliable in the case of these traits than in the case of any others of the list. Such traits as clearness, mental balance, judgment, and originality — all of which are important factors in the success of a teacher — are usually omitted though these

are the very traits where the figures show the greatest reliability.

It would seem possible by the use of some such method as this carried out on a very much wider scale, to justify a list of traits, numerical estimates of which by competent people would be both reliable and significant.

REACTIONS AND PERCEPTIONS

REACTIONS AND PERCEPTIONS

BY JAMES McKEEN CATTELL

ONE of the many contributions which make James's "Principles" the foundation of modern psychology is the emphasis placed on the relation of movements to mental life. We are told that physiologically considered the whole neural mechanism is a machine for converting stimuli into reactions, and one of the most original applications of the fact that objects excite bodily changes by a preorganized mechanism is made in the explanation of the emotions. I venture to take this occasion to propose a thesis, which in certain aspects is analogous to the James theory of the emotions. This thesis is that perceptions are distinguished from images by the greater prominence of the conative or motor elements.

Hume begins the first book of the "Treatise" with the familiar words: "All the perceptions of the human mind resolve themselves into two distinct kinds, which I shall call impressions and ideas. The difference betwixt these consists in the degrees of force and liveliness with which they strike upon the mind, and make their way into our thought or

consciousness." Now it is apparently possible to make a further analysis to the effect that the superior force and liveliness of the impression as compared with the idea, or of the perception as compared with the image, is due in part to the greater prevalence and definiteness of the motor elements.

It is not intended to argue that the larger motor element is the only criterion of perceptions. They probably have a "local sign," dependent on the part of the brain concerned; but it is likely that motor centres give the most significant differentia. A perception may, as a rule, be more intense, definite, and complete than an image, as the result of more intense, definite, and complete stimulation in the case of the afferent currents from the sense organs. These currents are also likely to produce more decided invasions of the train of ideas, and the usually more sudden appearance is doubtless one of the factors giving a perception its superior vividness.

When, however, following the path blazed by James and cleared by Dewey and Münsterberg, we approach the subject from the side of the sensorimotor arc, it appears that the way we react is as much a part of the psychophysical process as the kind of stimulation, and the motor elements are as integral a part of the perception as the strictly sensory elements. The stimuli pouring into the central nervous system from the extra-bodily world do not arrive in order that we may perceive them or may

write a system of psychology about them, but in order that we may react to them. In our daily life we must continually avoid obstacles and dangers, must continually get what we need or want. Our relations with the material world are primarily of this kind ; in the case of the lower animals they are almost exclusively of this kind. If a light is presented, my eyes turn toward it ; if some one speaks to me, I am ready to answer. The response is due to the mechanism of the nervous system as organized at birth and reorganized by experience. The organism that failed to react in this way could not survive, and natural selection accounts no worse for the increasing complexity of our reactions than for the increasing complexity of the organism.

In the case of images and ideas, the motor element is not absent, but it is less prominent. They are less likely to be followed by definite movements, which again give rise to new afferent currents with their accompanying perceptions. If some one speaks to me, I am in the habit of answering ; if I imagine the voice, I do not answer audibly if at all. The light I see is not necessarily more faint than the light I imagine, but there is a difference in vividness or liveliness, which can very well be attributed to the more customary need to react and to the greater prominence of the motor element. The nervous system is so organized that we react to objects, and the perceptions thus have superior vividness and reality, which enable us under ordi-

nary circumstances to distinguish perceptions from images. Our reactions as a rule work and are useful, giving rise to new perceptions and new reactions, which also work, and thus the material world becomes real for us.

When a cat sees or smells a mouse, it jumps to seize it, and the mouse runs to its hole. The motor discharge in the cerebral centres of the cat is as much a part of the perception of the mouse or of the mouse situation as are the incoming currents. The incoming currents and the pre-existing structure of the centres cause the discharge, and the perception, in my opinion, usually follows the discharge in time. This time order I pointed out more than twenty years ago in the case of the reaction-time. Here the stimulus does not cause a perception which causes a movement, but the stimulus and the pre-arranged brain connections cause the movement, and the process is subsequently given in consciousness as awareness of the kind of stimulus and the kind of movement.

The anthropomorphic cat, if it catches the mouse, has a series of agreeable experiences, which are convincing proof of the existence of a real mouse and of a physical and, for it, rational world. When the mouse situation again occurs, the cat has a lively and vivid perception of a real mouse. But while the cat is waiting for the mouse to turn up, it may have memories and images. It does not jump at these, because its nervous system is not made

that way. It is the incoming currents that arouse the suitable responses. Centrally excited processes do not and can not excite the same responses, for in this case the animal would not survive. It is only a mad cat that may jump at an imaginary mouse, and for it the jumped-at mouse becomes real. It should, of course, be remembered that inhibitions are as integral parts of the motor processes as discharges. The cat waiting for the mouse to come within reach is all muscular tension, which is part of the vivid perception of the approaching mouse. It appears indeed that consciousness is related to inhibition in a peculiarly intimate fashion.

The character and validity of our perceptions are prescribed by the motor responses no less than by the incoming currents. Thus the visual world is one in which we can do things rather than one in which we simply see objects. As I go forward to shake hands with a friend and approach from a distance of six feet to three, the image on the retina becomes twice as large, but there is no change in the apparent size of the man. A table has a rectangular top, from whatever point of view I look at it. I know that in the retinal image two of the angles are acute and two are obtuse, but I hesitate and make a geometrical construction before I know which is which. Most people would not suspect that if the arm is held at full length, the tip of the little finger will more than cover the sun. We have this year made in our laboratory some experiments

which measure the extreme extent of our inability to compare the sizes of retinal images as such. Incidentally I may remark that the indifference of the actual retinal images seems to account for the ordinary optical illusions. A slight clue, such as arrested movements of the eyes or possible perspective, may readily distort size or direction.

Experiments of my own, which I described several years ago, give a somewhat striking demonstration of the extent to which perceptions are shaped by the requirements of motor response. Curiously enough, it had not been remarked that in the vision of daily life objects are presented to the eye one after another, but are perceived side by side. As I look about the room, first one object and then another falls on the area of distinct vision, but I see the objects, not one after another at the same place, but side by side in the spatial arrangement in which I should find them, and covering a field in which it would be impossible for me to see simultaneously.

The results are similar if the eyes are still and the objects are moved over the retina. If I look through a window one centimetre square, and behind it three centimetre squares separated by centimetre spaces are passed, I do not see one square after the other, but the three squares side by side, somewhat crowded together and blurred, but two or three times as large as the window through which they are seen. If in this way first red is

exhibited and then green, we do not see first red and then green, but red, white, and green, side by side and covering a field several times as large as the retinal image. We perceive as a spatial continuum what is a time series in the physical world, in the incoming currents and in the brain centres.

In these cases each perceives the same physical stimulus in his own way. He may see the green above the red, or conversely; the green within the red, or conversely; bars of red and green arranged vertically or horizontally, etc. The first time that a stimulus is presented to an observer, he ordinarily has only a vague perception. The same stimulus after several trials gives a clear perception, which thereafter tends to remain the same for the same observer, though likely to be very different for different observers. When the actual physical stimulus is explained to observers, some of them see it as before, others quite differently. All of which shows that the attitude of the observer is as integral a part of perceptions as the incoming nervous currents, and that perceptions are prescribed by reactions.

It is sight and kinæsthetic sensations which, in the main, give us our spatial and material world. In sight, the movements of the eyes, head, and body are of extreme importance. We have with these senses immediate and constant reactions to stimuli. Hearing is less objective, owing to the loss of movable ears, but it is still rather intimately

connected with movement, especially on the side of time correspondence. Smell, taste, and organic sensations have decreasing objectivity. The reactions occur mainly within the body, and as we have the same body always with us, we regard it as part of ourselves rather than of the material world. This is especially true of the body known by kinæsthetic and organic sensations; the seen body, which alters its relation to the visual world, is more likely to be regarded as part of it.

Kinæsthetic perceptions and images have a peculiar position. We can form an image of a light or sound, but we cannot directly produce an objective light or sound; we can, however, directly produce movements. It may not be clear in a given case whether we have an image of a movement or have actually produced a movement or a partially inhibited impulse to make the movement. It appears to me that in so far as my thoughts are in sensory terms, they are mainly in the form of motor speech. I am inclined to believe that the articulation or the impulse to articulate actually takes place, and that it is not a matter of images at all, but of this I am not sure. Now the difficulty of discriminating between kinæsthetic perceptions and images seems, to a slight degree at least, to support the view that it is the motor element which distinguishes sights and sounds from visual and auditory images.

Pleasures and pains are *sui generis* like colors and

sounds. They probably have the teleological significance usually attributed to them; in any case, they tend, as a rule, to accompany, respectively, those performances that are beneficial or harmful to the organism or to the race. They seem to accompany both incoming and outgoing currents, and they are very vivid and real, but are not objectified. This seems, in part at least, to be accounted for by the fact that the senses which give us most knowledge of the physical world give us the least pleasure-pain, and conversely. The organic sensations give us no knowledge of the extra-bodily world and but little of what happens within the body, but the hedonic elements are constant and may be intense. Images of pleasures and pains are lacking or obscure, and this holds also — at least in my own case — for organic sensations, smells, and tastes. It seems that the sensori-motor arcs beginning and ending in the physical world give reality to our perception of objects, and the arcs beginning and ending within the body give reality to ourselves.

In the case of the emotions the cerebral commotion, as James has so brilliantly argued, is probably chiefly due to the excitation of bodily changes by the object and the discharges to the brain from the bodily excitation. It is not an essential part of the theory that the emotion should be correlated only with the afferent currents; indeed, the theory is apparently strengthened if we assume that feel-

ings and emotions are associated with those cerebral conditions which discharge into the viscera, etc., as well as with the conditions excited by afferent currents from the inner body. In Dewey's words, the emotional excitement represents the tension of stimulus and response. It appears to me that the incoming currents and the discharges which lead to definite muscular reactions give reality to the perceptions, and the incoming currents and the discharges to the inner organs with the vaguer muscular contractions give rise to the emotions. Then the purposive movements cause new stimuli and new reactions which add further vividness and reality to our perception of objects, and the commotion within the body gives rise to new excitations and to new discharges by which the emotion is heightened.

The theory does not require us to draw a definite line between perceptions and images. It is indeed confirmed by cases in which they are confused, for this occurs when the motor reactions are confused — when they are inhibited or are excessive. In sleep, in reverie, in some forms of hypnotism, intoxication, and insanity, the motor reactions are lacking or indefinite. In these cases there are dreams, visions, and hallucinations. We do not respond to the objects of the real world, and the distinctions between objects and ideas, between perceptions and imaginings, are obscured or obliterated. As a man falls asleep, he becomes passive,

he does not look or listen, and gradually his imagery becomes visions and dreams. In slight delirium or opium intoxication, if the patient arouses himself and responds to the environment the visions disappear, but return as soon as he relapses into inaction. I made a long while ago some experiments with hashish. Under the influence of this drug the subject may relapse into a passive condition in which time becomes endlessly long, space endlessly extended, and curious hallucinations occur. But if he gets up and walks about, looks and listens, the hallucinations practically disappear. In hypnotism the subject becomes passive, he can be made cataleptic, his movements are suggested to him instead of being normal responses to the environment. Artificial passivity is a prominent factor in the trances of the mystics and of the eastern yoga. In melancholia the failure of adequate motor responses precedes the hallucinations.

On the other hand, objects and images are equally likely to be confused when the motor reactions are excessive or unnatural. It is when the girl passes the churchyard at night, starting at every sight and sound, that she sees the tombstone as a ghost. In mania and in some phases of hysteria and delirium, the movements are uncontrolled and there are delusions and hallucinations. In the dancing mania and other psychological epidemics, in the camp-meeting revivals and the rest, the excessive and irrelevant movements may be

regarded as the cause rather than as the effect of the mental disintegration. Rhythmic movements are in a way extra-natural, not representing normal response to stimuli; they are a common method of producing ecstasy and abnormal mental states with hallucinations and the like. In savage rites and religious manias we have these in a crude form. In dancing and in singing, in music and in poetry, in oratory and in the intoned church service, we have them in more refined fashion; and we may regard the rhythmic motor impulses as one of the causes of the slight intoxication, the heightened emotional sensibility and loss of reality of the material world which then occur. I have myself lost self-consciousness with extraordinary completeness when playing football. Every muscle of the body is in action or in a state of unstable equilibrium, and the consciousness of a distinction between one's self and the rest of the world completely disappears. Something of the same kind to a lesser degree still occurs when I play tennis or swim in the sea.

It may further be noted that in many of the cases cited above we have first excessive or unnatural motor discharge, followed by lack of response. Typical but extreme cases are the epileptic fit—a violent explosion followed by coma—or mania followed by dementia. In intoxication the first symptom is the weakening of normal inhibition, the loosened tongue, the taking of one

more glass, etc. This is followed by disintegration of the normal reflexes — staggering, thick speech, double vision. Finally coma supervenes.

It is of course possible that in all these cases the mental changes may not be due to the motor disturbances, but that they have a common cause. Fatigue, fasting, abnormal blood supply, a cerebral poison or emotional excitement may be regarded as the cause both of the excessive or lacking motor responses and of the mental disorganization. But while it is not necessary to exclude other factors, the motor theory seems to be a simple and adequate explanation. It accounts for these disturbances, but does not depend on them for its verification.

We cannot separate images from perceptions. Images are revivals of past sensations, and perceptions are mainly supplied by conditions of the central nervous system. Images and perceptions are equally the result of brain changes, which are themselves part of the world's material system. But the brain changes which are excited from within are less likely to result in motor discharges than those which form parts of sensori-motor arcs. This is necessary if the organism is to survive and prosper. The more pronounced motor elements of the sensori-motor arcs are represented by superior vividness in perceptions as compared with images. This appears to be at least one of the factors enabling us to construct the world in which we live, and the statement appears to be a step, however small, in

the direction of passing from metaphysics to science, from epistemology to psychology, from theory of knowledge to knowledge of facts.

It is a discovery of natural science that each of us remains within his own experience. This experience is, however, such that it leads us to live in the world of common sense and perhaps later in the world of natural science. I do not see why epistemology or metaphysics should want to come in here as something super-psychological or meta-scientific. We can as a logical entertainment construct queer worlds; but none of these is the world in which we live. We can fancy a world of Arthurian knights, or of Arabian nights, or of metaphysical twilight, but those who should act as though they lived in such worlds would find themselves in those parts of the real world known as prisons or insane asylums. So long as the world of common sense and natural science continues to honor the drafts that we draw on it, we have satisfactory evidence of its solvency. This, I trust, is sound pragmatism.

**A PRAGMATIC SUBSTITUTE FOR
FREE WILL**

A PRAGMATIC SUBSTITUTE FOR FREE WILL

BY EDWARD L. THORNDIKE

IN his recent lectures on Pragmatism Professor James emphasizes the fact that the only issue of consequence in the free-will controversy is meliorism, for which indeterminism gives possibility.¹ It has perhaps not been clearly understood that meliorism is possible without the presupposition that the result of any condition of nature is indeterminate, — without any need of our going against, or even beyond, the scientific, matter-of-fact point of view and habit of interpreting the universe. It seems worth while, then, to show that the natural constitution of the world makes meliorism possible, and, in fact, necessary.

If the interpretation of human and animal behavior to be offered in the present paper is true, no one needs to deny the accepted doctrine of the conservation of energy or to abate a jot his allegiance to brain physiology or to swap the logic of science for that of hope in order to justify the faith that we make the world better. Indeed, the one thing

¹ "Pragmatism," pp. 118-121.

which can justify that faith is precisely brain-physiology as revealed by animal behavior.

What is meant in the discussion that follows will be abundantly clear to a matter-of-fact mind that interprets the terms used by their contexts, but, in case these terms may have been appropriated by philosophers for certain special meanings, I now define them. I shall use *satisfying* or *satisfiers* to mean those states of affairs which, in the case of us human beings, are welcomed, cherished, preferred to exist rather than to not exist, and which, in the case of animals in general, the organism does nothing to avoid, often doing such things as attain and preserve them. I shall use *discomforting* or *annoying* or *troublers* to mean those states of affairs which, in the case of us human beings, are repelled, disliked, preferred to not exist rather than to exist, and which, in the case of animals in general, the organism commonly avoids and abandons. To satisfy will mean to be or to make to be a satisfier; satisfyingness will mean the quality of being a satisfier; to annoy or to trouble and intolerability or annoyingness will have corresponding meanings.¹

By meliorism is meant the hypothesis that the world can *increase in satisfyingness* or *decrease in annoyingness* or *both* to the individual or group in

¹ Satisfying is, of course, not a synonym for pleasure-giving; nor is discomforting a synonym for painful. States of affairs that do not give any pleasure in its ordinary sense may be highly satisfying, and certain pleasures intolerable. A similar difference exists between the discomforting and the painful.

question. Such changes I shall call briefly *changes for the better*. The group in question in this discussion will be the human species. That is, concretely I shall try to prove that the behavior of human beings changes the world for the better for them and for future human beings. If their behavior has this influence, meliorism is possible, and unless the world under other influences changes enough to counterbalance it, meliorism is assured.

The first and also the essential part of the argument is to prove that the behavior of a man to the same situation (excluding the man's nervous system from the requirement of sameness) becomes as a rule more and more productive of the satisfying and less of the discomfoting as the situation recurs.

This statement will not seem to most of my readers to need proof. They will, quite properly, regard it as a paraphrase of the statement that man modifies his behavior so as to adapt himself better to his environment. They will say that nobody doubts this, that every hour's life proves that men learn, that the action of men in business and industry and government and the whole system of incentives and deterrents in homes, schools, and states prove that men's behavior is modified in favor of the satisfying, that they act so as to get what they want. They will accept it as a true statement, but neglect it as a rather insignificant one. I, on the contrary, am much concerned to

make sure that it is true, being confident that if it is true, nothing else in the world is so significant.

For, under certain conditions of social organization, the success of men in modifying their behavior so as to make the same external situation more productive of the satisfying to them singly means an increase in the satisfying for the whole contemporaneous group. And under certain conditions of reproduction and of similarity in the wants of successive generations of men, this success means an increase in the satisfying for the whole group's offspring, that is, for the race in the future. These conditions can be shown to exist. Moreover, the nature and amount of man's power to modify behavior in favor of the satisfying are definite and ascertainable, so that the meliorism which follows therefrom is entirely independent of the supernatural; is intelligible, free from vagueness, proper to serve as a basis for practice; is even measurable in amount. It is because human modifiability in favor of the satisfying guarantees meliorism to the species, a meliorism, too, which can be understood and reckoned with as we understand the growth of corn or the circulation of the blood, that it seems to me the most significant thing in the world, if true.

In human practice its truth has been assumed in much the same way as that of the existence of other minds or of the value of happiness. In psychological theory little attention has been paid to it, partly because the problem of how we come to perceive

the external world has been so emphasized and partly because psychologists have not fully realized that it is as truly influential in every case of learning, in the most subtle reasonings and appreciations, as in obvious motor responses such as opening a door or managing a spoon. But no one has ever denied it outright.

Appearances surely are enormously in favor of modifiability in favor of the satisfying, but there is one notable difficulty, that of conceiving any physiological processes paralleling the satisfying and discomforting aspects of states of affairs and capable of strengthening and weakening the conditions which preceded them. If one could know or even surmise *how*, for instance, the discomfort of the blow received by a jumping dog makes him less likely to jump again in the same situation, one would justly feel much safer in believing *that* it did. Instead, therefore, of adding to the bulk of evidence that neurone connections are modified by the results to the organism that follow, I shall try to strengthen the proof by a provisional hypothesis as to *how* they are so modified. This hypothesis is, very baldly, as follows:

1. On its physiological side behavior in the higher animals is a struggle for existence amongst neurone connections. The formation of a habit means the survival of one connection, the elimination of a futile response to a given situation means the death of another.

2. The main functions of the life of a neurone are nutrition, conduction, and movement.

3. The modifiability of an animal, that is, the elimination and survival of connections between its neurones, is due to the third function only, to the neurones' movements, neurone connections equalling certain arrangements in space of the terminal processes of the neurones.

4. A modifiable neurone behaves in its movements essentially as do the unicellular organisms. When its life activities, other than movements, are going on well, it continues whatever movement activity it is engaged in; when its life processes are interfered with, it makes one or more of the responses to such interference provided in its repertoire. The action system of a neurone is probably restricted to the terminals of its processes and its repertoire is probably as narrow as an amoeba's.

5. Activity in conduction puts a neurone in a physiological state favorable to activity in nutrition, and this state in turn provokes a physiological state favorable to activity in movement.

An attempt to support these five hypotheses by evidence is beyond the purpose of this article, which is only to describe a mechanism capable of producing behavior in favor of the satisfying, not to prove that just that mechanism does exist. Nor could anything even approximating a proof of them be offered. The hypotheses are not, however, wildly extravagant devices sought out simply because they

fit the case of behavior alone. That movement occurs in the ends of the processes of a neurone is held to be highly probable by physiologists. That the formation of habits concerns the movement function rather than the conduction function of a neurone has some slight direct support in the great resistance to fatigue of the conduction function. For the neurone to maintain in a specialized form the behavior of unicellular animals is at least more probable from present knowledge than for it to behave in any other one way. That the nutrition function will be made excitable by exercise of the conduction function is only an application to the neurone of one general physiological fact, and that the neurone, thus made hungry, will be more easily excited to movement, is only a similar application of another.

These five hypotheses, together with accepted facts of general physiology, will give a sufficient explanation of *how* behavior is modified permanently in favor of the satisfying provided some adequate connection can be shown to exist between the satisfying and annoying and the maintenance or depression of the life activities of the neurones other than movement. It is necessary to find for the satisfyingness and annoyingness physiological equivalents such as may enter as components into any activity-complex whatever of the modifiable neurones. For we know that in human life almost any state of affairs whatever may take on and put

off this extra quality of satisfying or annoying. The only further necessity is that these two physiological parallels should connect with a raising and lowering of the general offering of nutrition to the neurones. My suggestions will again be made as bald affirmatives.

6. The physiological parallel of the discomforting is excessive stimulation to conduction in a neurone or neurones, meaning by excessive *more stimulation than is at the time readily conducted off* to other neurones, a choked-up condition of the neurone, as it were. This excessive stimulation arises either from too much ingress of stimulation or too little outlet.

Pains and the thwarting of instinctive tendencies (and other tendencies derived therefrom) are the chief annoyers. The excessive stimulation hypothesis fits both very well, for the latter are almost certainly represented physiologically by a pent-up condition of the discharge in the neurones concerned, and the one thing we know about the physiological parallel of pain is that in many cases very great stimulation of any neurone is that parallel or is intimately allied to it. The difficult cases for the hypothesis are the semi-æsthetic dislikes, the annoyingness of certain chords, colors, tastes, and the like in spite of the fact that they are paralleled by only moderate stimulation of any neurones. It is to be noted, however, that many of these are cases of acquired dislike through the association of the

stimulation with some typical pain or thwarting, and that others may be explained by the fact that the mere unaccustomedness may make a stimulation which is in itself moderate in amount be excessive to the neurones in question. Hence the enormous influence of social tradition and individual experience in deciding which musical chords, which foods and drinks, which clothes and customs, shall be disliked.

7. The physiological parallel of the satisfying is normal stimulation to conduction in neurones, meaning by normal *such stimulation as is at the time readily conducted off* to other neurones.

In favor of such a parallelism stand the facts that mental and motor activity are *per se* satisfying, that the essence of the desirability of play of all sorts is richness of activity with freedom from inhibitions, and that the most pleasurable sensations lose their satisfyingness if too intense or too prolonged. The difficult cases for it are certain sensations, for instance, those connected with eating, which seem to be much more satisfying than other sensations presumably involving equally normal stimulations. Such cases are perhaps explainable on the ground that they involve a *greater number* of neurones, or by the not unlikely secondary hypothesis that the degree of satisfyingness of normal stimulation varies amongst neurones, being, for example, greater in the neurones concerned with tastes than in those concerned with temperature.

8. Over-stimulation of any neurone group decreases, and normal stimulation increases the temporary supply of food to the nervous system as a whole.

This feature of my explanation is the weakest in direct evidential support. Not much can be said in its favor except that there is nothing against it, that such an arrangement would be easy to evolve and would be so useful as to be almost surely selected for survival, and that it would account for the weakening effect of pains and worry upon the nervous system in general and the opposite total healthy tonus resulting from sensory pleasures and other satisfiers as well as for the facts of modifiability.

The significance of these hypotheses about the physiology of behavior will be clear to students of concrete cases of human and animal learning, but for convenience I give the facts for the fundamental types of adaptive modifiability.

Case I. A situation arouses a response which brings a satisfying state of affairs. The probability of a similar response to the situation in the future is increased up to some physiological limit.

Let N equal the neurone action corresponding to the situation, S . N arouses n_1 , leading to the act a_1 , which brings the satisfying situation Ss . Whatever movement-action existed to cause the conduction to pass by N - n_1 , is maintained, since the conditions of food supply due to Ss favor the life-processes. The Nn_1 neurones are more influenced

by the heightened food supply than other neurones, because they have recently been in conduction activity. Any later movement-action in the Nn_1 neurones will then have as its starting-point the position taken up in this experience rather than the average previous position.

Case II. A situation arouses a response which brings an annoying state of affairs. The probability of a similar response in the future is lessened.

N here arouses n_2 leading to the act a_2 , which brings the discomforting situation, Su. The diminution in food supply due to Su interferes with the life-processes of the Nn_2 neurones. Whatever movement-action existed to cause the connection Nn_2 is changed to some other, if the neurone's repertoire includes as a response to interference with its life-processes any other movement-action. Other neurones than those concerned in Nn_2 will be less influenced by the lessened food supply because they have not so recently been in conduction activity.

Case III. A situation arouses several responses, one of which brings a satisfying result whereas the others bring annoying results. The satisfying response is selected by the forces operative in Case I and Case II.

Case IV. A situation arouses several responses, all bringing satisfying results, one of which brings more intense satisfaction than the rest. This response is selected because it implies the greatest increase in the food supply and so the strongest ten-

dency for the neurones concerned in the connection to persist in the movement-activity producing the connection.

Case V. A situation arouses several responses all bringing annoying results, one of which brings the least annoying results. Relatively to the others it will be selected, because the movement-actions concerned with the others will be checked more rapidly and more vigorously.

Professor Jennings has outlined a physiological explanation of adaptive modifiability which is, or at least seems, simpler than the one just described. Anyone who is interested not only in meliorism as a general fact, but also in the concrete mechanisms which account for it, should study his account¹ in detail. Its general features are:

(1) That when the life-processes of an organism are progressing well, whatever behavior is going on, continues to go on.

(2) That interference with the life-processes produces change in behavior.

(3) That, of these changes, the one that puts an end to the interference is selected for survival at the time by (1) and (2) and for superior survival in the future by the law of the resolution of physiological states, which is that "when a certain physiological state has been resolved, through the action of an external agent or otherwise, into a second physiological state, this resolution becomes easier, so that

¹ "The Behavior of the Lower Organisms," Part III.

in the course of time it takes place quickly and spontaneously," so that a series of states $A \rightarrow B \rightarrow C \rightarrow D$ comes to replace itself by $A \rightarrow D$.¹

It seems to the writer necessary to go beyond Professor Jennings's hypothesis, because it fits readily only the secondary case where the situation arousing responses is annoying and where one of the responses brings a satisfying result in place of it, and because the facts summarized in the law of resolution seem to need explanation by adaptive modifiability rather than to themselves explain it. At another time I hope to review his explanation with the full respect and care which its attractive simplicity and the masterly experimental work which led to it demand. For the present we must turn to more general issues, reminding the reader that whatever may be thought either of Professor Jennings's or my own explanation of the mechanism whereby the responses made as the same external situation recurs come to increasingly satisfy, there is no *a priori* impossibility in the performance of the task by *some* mechanism. Just as the world at large is so constituted as to produce increasingly those aggregations of matter which possess life, so the nervous system may be so constituted as to produce increasingly those neural arrangements which possess satisfyingness.

The next step in the argument is to show that behavior in favor of the satisfying to an individual

¹ "The Behavior of the Lower Organisms," Part III, pp. 289-290.

leads to meliorism for the species. The facts will be clearer if some attention is given, first to an obvious but practically very important extension of modifiability, and second to the influence of behavior in favor of the temporarily satisfying upon the satisfyingness of the individual's entire life thereafter.

In the discussion so far the modifications in behavior itself have been emphasized, but behavior not only changes itself for the better for the same situation, but also changes the situations themselves for the better for the same organism. Even the lower animals build nests and store food as well as form habits; in man, of course, this second sort of amelioration by behavior reaches an enormous growth. There is, however, no fundamental difference between influencing the atoms in one's body *via* the neurones and influencing the atoms out of the body *via* the neurones and body too. No new analysis is needed for the latter case. It is important only because it is responsible for a large part of the amelioration of a single life taken in its entirety, and for still more of the amelioration of the life of the species by the behavior of men singly.

In the discussion so far the amelioration has been an amelioration of the results of one situation, leaving it possible that changing one's life for the better in this particular might change it for the worse as a whole. Learning to quench thirst satisfactorily, for example, might force upon one long years of misery as a drunkard. Behavior in favor

of the immediately satisfying may and often is in favor of eventual discomfort, either because the immediately satisfying has such consequences of itself or because the organism at a later condition of development is annoyed by early satisfiers. On the whole, however, the satisfying is less likely to involve secondary annoyances than is the annoying, and the organism's tastes are much more likely to persist with moderate alterations than to pass suddenly into their opposites. Moreover, the human intellect can perform the most useful service of considering a state of affairs in its remote and future implications and associating with it the measure of satisfyingness which it deserves in view of these as well as of its immediate effect ; in so far as he has knowledge and rational tastes man can modify his behavior throughout in favor of the satisfying to him as a total life. There are a few men whose behavior as a whole has, by stupidity or bad fortune, increased their misery as a whole. There are still more whose behavior has increased states of affairs which others would be made miserable by, but which perhaps do not seriously annoy them. (We must not forget that there are satisfied drunkards, paupers, and invalids.) But by far the commonest case is the man for whose total life the world changes for the better so far as it is changed by his own behavior. Were he omniscient he would not have that cut out from the universe ; even when he might wish never to have

been born he would still wish that, were he to have been born, the old privilege of modifying behavior should remain.

The individual's gain through behavior does not involve a counterbalancing loss to others of the same species for somewhat the same reasons that his temporary gain does not involve a total loss to him. First, what is good for him as a total life is good for the species more often than not and, second, the species has power to weight the satisfyingness of affairs.

There are no forces operating absolutely to make what satisfies one total human life add to the annoyance of all men; and there is one force operating to make it frequently satisfy all, namely, the similarity among members of the same species with respect to the satisfyingness of varying conditions of the environment. When a man alters nature to suit this common humanity in himself, he alters it to suit the common weal. For him to kill the tiger in self-preservation preserves life for all; for him not to catch the yellow fever means less likelihood of infection for every other man. Even the cases which are quoted to support the doctrine of antagonism between the individual and the species often exemplify our rule; the man who eats the food that some one else would otherwise have had, for instance, really alters nature for the common weal, for it is to the interest of the human species to have the food eaten by a man.

The satisfaction of the species has, too, a more direct guarantee than that which comes from an anarchy of individual impulses. Even before any self-directed, deliberate social action appeared, natural selection provided through the social instincts a certain amount of harmonization of the satisfying to men singly with the satisfying to men as a group. And in proportion as intelligence is directed towards life, men as a group arrange its situations so as to encourage and even compel such behavior of men singly as shall not necessitate a common loss. In the long run just as the life of the species overrules any extravagant claims of the life of any individual, so the wants of the species will and do overrule any too selfish wants of an individual. When behavior arises which, besides satisfying the individual, adds to the sum of satisfaction of the group, it is almost inevitably selected for survival. Parental care of offspring, good will to fellows of the same species, industry, intellectual curiosity and its sequents, scientific investigation and invention, the sense of justice — these and many other traits of human nature and behavior are examples of the selection in the human species of tendencies beneficent to it. Just as the forces of the world are such that, in spite of the mutual warfare of species, life as a whole gains, so they are also such that, in spite of the mutual warfare of men, there is gain for human satisfaction as a whole.

It is conceivable that all the human beings alive

at one time might unite to exhaust the satisfyingness of the world to the ruin of future mankind. If generation followed generation by a simultaneous birth of one with a long lapse before the birth of the next, and if human nature were changed in appropriate ways, such a sacrifice of the future of the species would be not only conceivable but also possible. One generation in its prime might waste the world's supplies, leave the next generation untrained and plan a general destruction of materials, knowledge, skill, and health. Counting all the satisfaction of future men as nothing compared to their own slightest gratification, one generation of a species could then wreck its happiness as they could destroy its life.

But, as things are, no one generation of the species would accept such a doctrine of "After us, the deluge," nor could it practice the doctrine if it did. Each succeeding generation's happiness is protected, by no means perfectly, but still somewhat, by the parental feelings and by the small stock of general good will to the species which characterizes the previous generation. *And the future generation is always there to protect itself.* The bond that unites contemporaries also unites each generation with the next. We are bound to Adam and to the superman as we are bound to our next-door neighbors.¹

¹ Whether the tendencies in behavior which change the world for the better for one generation are transmitted through inheritance to the next is, of course, an unsettled question, but with the chances overwhelmingly

It is not to be denied that this protection is a restricted, hand-to-mouth affair, that the far-off generation may lose enormously from particular acts of its forebears, done possibly through malevolence, often through indifference to remote human life, and oftenest of all through ignorance. No doubt each generation could do far less injury to those to come just as it could to itself and just as each man in it could to himself. No doubt, too, that the future race is less cared for than present associates, just as the present satisfaction is more cared for than an equal future good to oneself. But the fact remains that the colossal blunders of burning cities for spite or spreading the plague by superstitious pilgrimages are outweighed by equally colossal benefactions, and that the ignorance surely, and the indifference to remote humanity probably, are being reduced by the very human behavior of which they are a part. The constitution of things permits enormous loss in satisfaction here and there through behavior, but not in the total account. If meliorism for the human species as a whole is lost, it must be by outside attacks. So far as the behavior of the species, from beginning to end, acts, it acts to change the world for the better for the species as a whole.

It is not within the province of this article to measure the changes for the better made by human in favor of the negative except for such general tendencies toward vigor, health, and the like as can be expected to affect the germ-plasm in the same way as the body-plasm.

behavior, or those for the better and for the worse made apart from human behavior, or to ask how the balance is changing with the world's development in time. Nor is it relevant to this discussion to ask how in the past, present, or future the sum of human satisfaction compares with the sum of human discomfort. No one claims for free will that it makes a positive balance of the first sort or that it needs a positive balance of the second sort as verification. What free will offers is the right to believe that human behavior may, so far as it itself goes, possibly change the world for the better. What our substitute for the freedom of the will offers is the surety that it does.

The meliorism which has been sketched deserves the epithet "intelligible." Concerning it we know in general already that it applies in a measure to many, possibly to all, animals; that it is a function, not of some mysterious entity, the will, but of intelligence pure and simple; that it varies in power in different human beings according to their ability to learn; and that it is not restricted to the consequences of choices in great crises nor to those made after deliberation or with a feeling of effort or with acute consciousness of self.

We know further that it is very definitely limited. Satisfyingness and annoyingness can only select, not create. For the origination of mental variations one must look, not to the wants of the creature,

but to the general constitution of the creator, the world as a whole. The selection, too, is within only a limited field, that of a fraction of our instinctive responses and of the habits built up thereon. Within these limits, however, our meliorism is more than "a doctrine of promise." It is a doctrine of surety. We are not free occasionally to swerve the future to our wants; we are forced always to do so.

The concrete particulars of its action, also, need be in no wise fortuitous or unpredictable. On the contrary, if one knew perfectly the total physiology and psychology of an animal, including the satisfyingness and annoyingness of every state of affairs to it, he could predict the modifications in its behavior due to our law as surely as the unmodified behavior of a hydrogen atom. This meliorism is then entirely consistent with determinism, provided that the world is so determined that for a neurone connection to produce a satisfying result makes an enormous difference in that connection's future. The world may have its every minutest item settled, provided only that the items are so settled that in certain organisms the habits of response which satisfy most are most favored in survival. It is consistent with indeterminism too, as it does not deny that here and there there may be changes in the universe coming from nothing, utterly lawless, unaccountable, unpredictable residua of events to be accepted but never to be understood. It would side

reproduction of animal forms by fission. To assert that, so far as a man's own behavior goes, he betters himself, is the same variety of judgment as to say that, so far as the behavior of the population of Russia goes, it increases itself.

The modifications in human behavior thus belong to science as truly as the repetitions. The history of intellect and morals is as "natural" as the history of the backbone. We can find out how the world changes for the better by the same general methods by which we find that it changes in the species inhabiting it. And we may hope that the influence of science on practice will here as elsewhere assist our control of nature and men, until the success of the physical sciences in making nature minister to human wants is equalled by the success of the mental sciences in making those wants rational and benign.

